A Lecture

ON

THE PRINCIPLES OF VACCINE-THERAPY.

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BY SIR A. E. WRIGHT, M.D. DUB., F.R.S.,

SOMETIME PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY; DIRECTOR IN MEDICAL CHARGE OF THE DEPARTMENT FOR THERAPEUTIC INOCULATION, ST. MARY'S HOSPITAL, LONDON, W.

(Concluded from p. 427.)

WE have next to make a detailed study of the curves of immunisation which are obtained by the inoculation of bacterial vaccines and to make acquaintance with the laws which govern the output into the blood of the opsonins and other bacteriotropic substances which are produced in the organism in response to an *ictus immunisatorius*.

DETAILED STUDY OF THE CURVES OF IMMUNISATION WHICH ARE OBTAINED BY THE INOCULATION OF BACTERIAL VACCINES.

Such a record as is furnished by the immunisation chart reproduced in Fig. 1 gives an inadequate, and, be it noted, a quite fallaciously inadequate, account of the events which occur in the blood after the inoculation of bacterial vaccines.

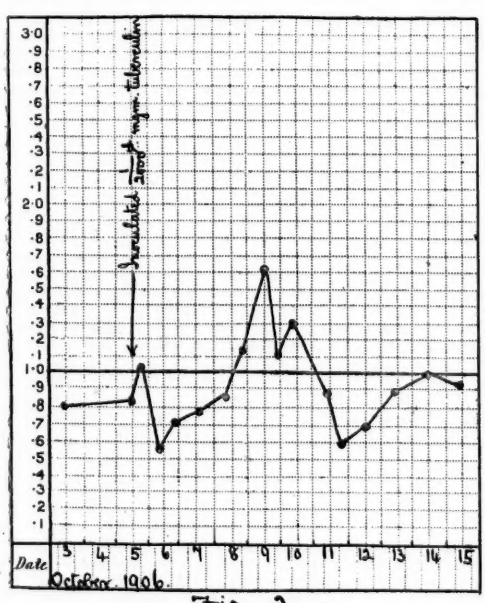


Fig. 2.

Curve showing the changes in the opsonic power of the blood which followed upon the inoculation of $\frac{1}{1000}$ milligramme of tuberculin into a patient suffering from tuberculous cystitis.

When, instead of testing the blood after inoculation at intervals of from a week to ten days, as was done in the case of the patient whose immunisation chart has just been considered, the blood is tested from day to day, it is borne in upon us that the augmentation of the bacteriotropic power—or, let us rather phrase it, the rise in the bacteriotropic pressure—of the blood is generally preceded by a depression. It is borne in upon us also that the rise which is achieved by inoculation is only a transient rise, and that the bacteriotropic pressure generally declines after the interval of a few days, sometimes sinking away until it reaches the point at which it started, in other cases running along for a time at a level only a little above the original base line. I have spoken of the sinking away of the bacteriotropic pressure as the "negative phase" and of the rise of pressure as the "positive phase" of the reaction of immunity. And I have tried to delineate in words the whole oscillation by speaking of "the ebb" (the *negative phase*), "the flow" (*positive phase*), "the backflow" (subsequent decline of the curve), and the "sustained high tide of immunity."

This phrase describes only the larger features of the curve. Where more frequent and in particular where earlier blood examinations are made another practically constant feature reveals itself. This is the transient initial rise preceding the negative phase. We may think of this as of a wavelet which arrives before the ebb which precedes the main wave of immunity. This wavelet and its position in the general scheme of oscillation is shown on the record below. (Fig. 2.)

It is not to be assumed that the form of curve, as set forth in the chart above, is universally conformed to. Where a dose of vaccine which is only just sufficient to produce a result is administered the negative phase is elided and there is registered only a positive phase. The curve in such a case neither rises so high nor does it maintain itself so long above the base line, as in the case where a larger quantum of vaccine has been administered.

Where an excessive dose of vaccine is administered—meaning here by an excessive dose a dose whose inoculation produces severe constitutional symptoms—the negative phase is proportionately accentuated and prolonged. Where the quantum of vaccine is immoderately large the bacteriotropic blood pressure may be reduced for a period of weeks. The advent of a positive phase may often in such a case be awaited in vain.[1]

Chronology of the different phases of the curve of immunisation.—Having now learned the features of the curves which are obtained after the inoculation of different quanta of bacterial vaccines we may further study the chronology of the successive incidents. The traditional view—a view which would seem to have been derived from experience with vaccinia—is that a period of ten days is always required for the establishment of active immunity. Largely owing to the fact that this view was adopted by Pasteur, it became part of the routine religion of bacteriologists, animals and men being subjected to test inoculations or to reinoculation on the expiration of a fixed period of ten days. So far as I know Haffkine was the first to claim that a condition of immunity was achieved already within 24 hours after the inoculation of a vaccine. He put forward this claim in connexion with his plague vaccine, basing his contention on the statistical results of anti-plague inoculations undertaken respectively in the Byculla Gaol in Bombay and in the village of Undhera. Some years afterwards, the matter having in the meantime been advanced a step further by the publication, under Haffkine's auspices, of evidence pointing to the successful inoculation of patients who were already in the incubation period of plague—I obtained in the course of a study of the changes effected by antityphoid inoculation in the bactericidal power of the blood evidence of development of increased bactericidal power in the blood on the day subsequent to the inoculation of moderate doses of antityphoid vaccine. Following upon that I obtained in connexion with my first therapeutic inoculations of staphylococcus vaccine evidence of increased phagocytic response on the day subsequent to inoculation. One would have thought that the achievement of an immunising effect within so short a period as 24 hours would have constituted a record. We have, however, during the last 12 months obtained in very numerous cases conclusive evidence of an augmentation of the opsonic power of the blood within an hour after the inoculation of tubercle vaccine, and also trustworthy witness of associated clinical improvement within that time in connexion with the inoculation of tubercle vaccine in an infection of the eye. We have also, in connexion with the treatment of furunculosis by inoculations of staphylococcus

[1] It may be interesting in this connexion to note the following points. 1. Immoderate negative phases due to over-dosage rarely come under observation except in the case of patients who are new to inoculations. After a prolonged series of inoculations it is the rule (but by no means an invariable rule) to find that a large surplus of vaccine over that which is required to raise the bacteriotropic pressure of the blood can be tolerated. 2. Where by inadvertence an excessive dose of vaccine has been administered it is unnecessary indefinitely to await the return of the bacteriotropic pressure to the normal. In such a case the desired rise can practically always be obtained by reinoculating, as soon as all constitutional symptoms have disappeared, with a minimal dose of vaccine. 3. The initial rise which has been referred to in the text may come into observation also in connexion with the inoculation of an immoderate dose of vaccine. It may therefore be provisionally assumed that such initial rise is the response of the organism to the fraction of the total dose which is immediately absorbed.

vaccine, obtained trustworthy evidence of clinical improvement within an hour after inoculation. The augmentation of the opsonic power and the clinical improvement which are here in question were, as you will appreciate, correlated, in the case where very small doses of vaccine were employed, with the development of the ordinary positive phase, and, in the case where moderate doses of vaccine were employed, with the development of that feature in the curve which was referred to above under the designation of the initial rise.

QUESTION AS TO WHETHER IT WOULD NOT BE POSSIBLE BY PILING ONE INOCULATION UPON ANOTHER TO ACHIEVE A LARGER OUTPUT OF ANTIBACTERIAL SUBSTANCES AND IN ASSOCIATION WITH THIS A POSITIVE PHASE OF LONGER DURATION.

It will be every man's—at any rate, every beginner's—thought that it ought to be practicable to achieve a larger output of antibacterial substances, if not by the employment of larger doses of vaccine, then assuredly by piling up inoculation upon inoculation. I have already discussed this question elsewhere,[2] and have pointed out that, while it may be possible in connexion with certain vaccines and the employment of submaximal doses—using the term submaximal doses here to denote doses smaller than those which would give maximal immunising response—to obtain cumulation in the direction of the positive phase, such a result can with other vaccines—and in particular with tubercle vaccines—very rarely, if ever, be obtained. Where this situation confronts us the proper policy would appear to be to treat each inoculation as an independent event, following up one inoculation by another as soon as the effect of the antecedent one is passing off.

QUESTION AS TO WHETHER IT IS EXPEDIENT TO EMPLOY IN SUCCESSIVE INOCULATIONS PROGRESSIVELY INCREASING DOSES OF VACCINE.

Close kin to those primitive ideas which suggest that the immunising response *must* increase proportionately with the dose of vaccine employed, and that failing this it *must* be possible to obtain an increased immunising response by piling one inoculation upon the other, is the idea that it *must* be possible to achieve a greater yield of protective substances by employing in successive inoculations doses of vaccine increasing by geometrical progression. In point of fact, experiment shows clearly, not alone that no advantage is reaped from such progressive augmentation of the doses of vaccine, but that such a system of dosage must inevitably culminate in disaster. Indeed it is obvious, on *a priori* considerations alone, that where the dose of vaccine is progressively augmented a point must sooner or later be arrived at when the immunising power of response will give out. I would therefore put it to you that the proper principle of dosage in connexion with any series of inoculations is never to advance to a larger dose until it has been ascertained that the dose which is being employed is too small to evoke an adequate immunising response. I regulate in practice the dosage of bacterial vaccines for therapeutic purposes in accordance with the following scheme. Where an examination of the patient's blood taken 24 hours before inoculation shows a subnormal index, and examination of his blood taken 24 hours after inoculation shows that the index has been considerably reduced, I take it that the smaller dose would have been appropriate. Where examination of the blood 24 hours after inoculation shows that the index has been raised, and where after the expiration of an interval of a week or ten days the index has fallen back to what it was before inoculation—the patient having experienced throughout nothing in the form of constitutional disturbance—I take it that a larger dose might appropriately have been administered. Where in association with a slight initial fall after inoculation the index is, after the expiration of a week or ten days, found to stand higher than it was at the outset, I take it that an appropriate dose has been administered.

QUESTION AS TO THE SITE WHICH OUGHT TO BE SELECTED FOR THE INOCULATION OF A BACTERIAL VACCINE.

A whole array of observations point to the local production of bacteriotropic and vaccinotropic substances generally at the site of inoculation. We have, in the first place, the observation that an infinitely greater yield of antitoxins—and it would seem also of antibacterial substances generally—is achieved in horses by the subcutaneous as contrasted with the intravascular method of inoculation. We have, further, the observation, in connexion with antityphoid inoculation, that seemingly a more effective protective reaction is induced in patients who show considerable local reaction at the seat of inoculation than in those who suffer from severe constitutional symptoms apart from any appreciable local reaction. We have further observations to the effect that local immunity may be acquired and retained apart from the requirement or retention of general immunity. If we may build—as it would seem that we may—upon the aggregate of these observations, it would logically follow that the site of every inoculation which is undertaken for therapeutic purposes deserves to be very carefully considered in connexion with the site of the focus of infection which is to be influenced. We may speculate as follows. Where protective substances pass into the blood through a channel which does not lead through the focus of infection—let us, for the purpose of fixing our ideas, suppose that focus to be situated in a lymphatic gland—the newly elaborated protective substances will come into operation upon that focus only after they have been diluted by the whole volume of the blood. Where, on the contrary—if I may so express it—the inoculation has been made "up stream" from the focus of infection—i.e., in some part of the lymph watershed which drains through the focus of infection—the protective substances which are produced at the site of inoculation may be expected to come into application upon the focus of infection in a comparatively undiluted condition.

Pending the time when the place of origin of the bacteriotropic substances which appear in the blood after inoculation shall have been definitely set at rest by some *experimentum crucis*,[3] I have made some tentative therapeutic experiments on the relative efficiency of inoculations undertaken up stream from the focus of infection as compared with inoculations made in regions which were not so related to that focus. I feel satisfied that those experiments—though they at the same time indicate that one and the same portion of tissue tires out on too frequent inoculation—have furnished results conformable to those which might have been expected to follow from the theory of the production of bacteriotropic substances at the site of inoculation. To take only one case out of many, I was much impressed by the fact that the theory of the local production of protective substances suggested a procedure which successfully arrested, after all other methods had failed, the spread of a tuberculous process which long defied treatment by the ordinary method of inoculation. This successful result was obtained in the case of an ulcer which, though it had completely healed in the middle, was spreading outwards in the form of a ring of indurated tissue. Its arrest and definite cure were achieved when—executing a strategic move—I inoculated the tubercle vaccine in a number of different points disposed circle-wise around the extending ring.

AN ACQUAINTANCE WITH THE PHYSIOLOGY OF THE IMMUNISING RESPONSE IS NOT A SUFFICIENT EQUIPMENT FOR AN IMMUNISATOR.

Up to this point we have been dealing with the physiology of immunisation and the nature of the immunising response. For the successful treatment of bacterial disease by methods of immunisation something more is required. We must realise the conditions under which bacteria cultivate themselves in the organism. We must understand in what circumstances bacterial products or, as the case may be, bacteria are conveyed into the blood stream from local foci of infection. We must appreciate how the organism reacts to such '*auto-inoculations*.' And we must understand how to bring the leucocytes and bacteriotropic substances which are the instruments of immunisation into operation upon bacteria which are cultivating themselves inside the organism but outside the blood stream.

CONDITIONS WHICH OBTAIN IN THE FOCI OF BACTERIAL INFECTION.

We may conveniently begin with the study of the conditions which obtain in foci of bacterial infection. I have already often pointed out that the foci in which bacteria

[2] Clinical Journal, May 16th, 1906; Transactions of the Royal Medical and Chirurgical Society, vol. lxxxix.

[3] I would throw out in this connexion the suggestion that the production of protective substances at the site of inoculation would be definitely set at rest if after the inoculation of a bacterial vaccine into a limb it were shown that an increase of protective substances in the blood could be achieved by either massage and the application of a Bier's bandage.

cultivate themselves are in every case '*foci of lowered bacteriotropic pressure*,' and that the deficit of antibacterial substances in such foci can be accounted for by the fact that bacteriotropic substances are absorbed whenever blood fluids come in contact with bacteria, and by the fact that in the case of foci which are cut off from the blood stream the conveyance of bacteriotropic substances to the focus of infection by the lymph stream can only rarely keep pace with the afore-mentioned absorption. This premised with regard to the conditions which are common to all bacterial foci, I may here conveniently direct attention to special conditions which obtain (*a*) in infections of serous membranes where serous effusion has taken place, (*b*) in abscesses, (*c*) in sinuses, and (*d*) in association with brawny swelling of the subcutaneous tissues.

(*a*) *Conditions which obtain in the case where bacteria are growing in, or in contact with, serous effusions.*—These are well exhibited in connexion with tuberculous peritonitis. Here, as my fellow worker, Douglas, and I have already shown, the ascitic fluid has in every case a much lower opsonic index than the circulating blood. It follows that the bacteria which are cultivating themselves in, or in contact with, such ascitic fluid are not exposed to the full bacteriotropic pressure of the circulating blood. We have here, as I have already pointed out, an explanation of the success which has attended tapping, and in particular laparotomy, in connexion with tuberculous peritonitis. That success is satisfactorily accounted for by the replacement of a stagnant lymph which has forfeited much of its antibacterial virtue by a fluid of higher efficacy freshly derived from the circulating blood. Manifestly we should be neglecting a very important element in the treatment, if while aiming at the destruction of bacteria in a serous membrane by processes of immunisation we were to fail to take into account the fact that the bacteria which are the object of our attack are cultivating themselves under a lowered bacteriotropic pressure.

(*b*) *Conditions which obtain in abscesses.*—In abscesses the conditions are more complicated. Here we have to take into account not only the absorption of bacteriotropic substances by bacteria, but also another factor which does not come into consideration in the case of ordinary serous effusions. This factor is the liberation of a tryptic ferment from the leucocytes. Such liberation occurs, as Opie has shown, whenever these formed elements disintegrate in pus. It is clear that as soon as—under the influence of autolysis or bacterial action—leucocytes have disintegrated in an abscess in numbers sufficient to abolish the opsonic and antitryptic power of the surrounding fluid, not only the normal bacteriotropic defence, but also the leucocyte defence will be thrown out of gear. I have neither the time nor the data to discuss with you here certain important but incidental issues which suggest themselves in this connexion, in particular the issue as to whether the liberation of tryptic ferment in the abscess—which Opie has brought into association with the destructive and burrowing action of pus—may not also account for the paralysis of all phagocytic effort which sooner or later overtakes the leucocytes in every focus of suppuration and for the frequent sterilisation of the contents of an abscess. It is, however, incumbent on me tc point out to you that where we are aiming at the destruction of the bacteria in a suppurating focus by the agency of opsonins and leucocytes, and are aiming at the same time at the safeguarding of the tissues from the digestive action of the pus, it would be futile to attempt this task without making provision for the replacement of the tryptic and non-opsonic pus fluid by an antitryptic and opsonic fluid freshly derived from the circulating blood.

(*c*) *The conditions which obtain in sinuses.*—The conditions with which we have to deal in a sinus where that sinus is freely discharging pus are, I take it, essentially similar to those which prevail in an abscess which is discharging without emptying itself. In other words, we have a pus fluid which possesses a low opsonic power, and which exerts upon the tissues a digestive effect—a digestive effect which makes itself manifest to the eye in the case of a discharging sinus in the sodden and unhealthy appearance of the skin around the orifice. In the case of a choked sinus we have to deal with conditions which might be compared to those which would obtain in a well if the water which originally flowed into it had deposited an insoluble element in such a manner as to choke up all the conduits of supply. We can easily conceive how, no the walls and floor of such a well, forms of life might maintain themselves which would be quite incompetent to penetrate into the surrounding soil, or to hold their own in the face of a copious output of water. A dry sinus is, if I understand the situation aright, analogous to just such a choked well, the obstacles to the inflow of lymph being, on the one hand, the density of the granulation tissue, and on the other hand, the lining membrane of fibrin which clothes the walls of the sinus. If these are in reality the conditions under which bacteria maintain themselves in a sinus, we shall need for their dislodgment something more than a mere increase of the bacteriotropic power of the blood and circulating lymph.

(*d*) *The conditions which obtain in "brawny swelling."*—Next in order we have to consider the case where we have a focus of bacterial growth in tissues which are affected with 'brawny swelling.' I take it that in brawny swelling we have conditions which are, in the respect that the bacterial growth is cut off from the blood and lymph stream, analogous to those which have just been under consideration in connexion with sinuses. It is in the nature of a minor difference only that in brawny swelling the bacterial growth is isolated from the blood and lymph stream by the clotting of the lymph in the lymphatics, while in the case of a dry sinus the isolation of the bacteria is brought about by the clotting of the lymph on the surface of granulation tissue.

THERAPEUTIC PRINCIPLES WHICH EMERGE FROM THE CONSIDERATION OF THE CONDITIONS WHICH OBTAIN IN A BACTERIAL FOCUS.

A strict regard for the logical development of my subject matter would perhaps dictate that I should at this point embark upon the study of the phenomena of auto-inoculation, reverting afterwards to the consideration of the therapeutic measures which may be employed for dealing with the difficulties which are created (*a*) by the absorption of bacteriotropic substances in the bacterial focus; (*b*) by the liberation of tryptic ferment that takes place when leucocytes are broken down; and (*c*) by the obstruction of the lymph flow. It will, however, perhaps be more convenient if I discuss the therapeutic measures by which we may deal with these difficulties while the situation which we have in each case to confront stands out clearly before your minds. The general principles which ought to inform all our therapeutic measures are the following:—*We must provide for the conveyance of bacteriotropic substances into the focus of infection. In the case where an accumulation of stagnant fluid in the focus of infection effectually prevents the entrance of bacteriotropic substances we must as a preliminary measure draw off the fluid which occupies that focus. In the case where there are other obstacles to the free streaming of lymph through the focus of infection we must remove those obstacles.*

(*a*) *Conveyance of bacteriotropic substances into the focus of infection.*—The douching of the focus of infection by a stream of lymph fresh from the blood-vessels can in the case where the tissues are uninjured and the lymphatic channels are unobstructed, be effected by determining by the agency of heat or any other rubefacient a larger blood-supply to the region affected. It can also—as in Bier's method—be effected by banking up the blood in the veins in such a manner as to increase the hydraulic pressure in the capillaries.

(*b*) *Removal of stagnant fluid from the focus of infection in the case where this prevents the lymph which transudes from the blood-vessels finding proper access to the infecting bacteria.*—In the case where the lymph can effectively make its way through the focus of infection, permeating every part of it, access of the bacteriotropic substances to the infecting bacteria will manifestly be provided for by the activation of the lymph stream quite apart from any operative interference. In such a case the stagnant fluid which occupies the bacterial focus will—whether for good or for ill we must afterwards consider—be driven on into the general circulation by the *vis a tergo* of the activated lymph stream. Where this method of dispersion is inapplicable, or where for any reason it is contra-indicated, the evacuation of the stagnant fluid by operative measures will obviously be desirable. In the case where we have in an abscess a tryptic fluid which is eating its way into the surrounding tissues[4] such evacuation will not only be desirable but imperative.

[4] It is perhaps worth noting that the fact that an abscess gives fluctuation does not by any means furnish sufficient warrant for concluding that it contains a tryptic fluid and that operative measures must be resorted to. Again, even where the contents of an abscess have by the disintegration of leucocytes already acquired tryptic powers, it may still be practicable to abolish that tryptic power and to effect resolution by leading into that abscess cavity a sufficient quantum of antitryptic lymph.

Where we elect to employ the method of evacuation as distinguished from the method of dispersion our choice will lie between simple incision, incision followed by dry cupping—as advocated by Klapp—and evacuation by aspiration. This last method has, I submit, an advantage over all others in the respect that it does away with all scarring and minimises both the risk of the entrance of bacteria from without and the risk of auto-infection of the edges of the wound. It also secures more effectively than any method of incision and drainage what is in the case of an abscess the obvious desideratum, to wit, the filling up of the evacuated cavity with an antitryptic and opsonic lymph which will both inhibit bacterial growth and arrest further digestive destruction of the tissues.

(*c*) *Removal of obstacles to the free streaming of lymph through a focus of infection.*—We have seen above that a deficient outflow of lymph and the formation of a lining of fibrin on its walls are in the case of a sinus favourable to the survival of the infecting microbes. I am accustomed to combat these conditions by introducing into every dry sinus a solution of 0·5 per cent. citrate of soda and 5 per cent. sodium chloride.[5] It will be understood that the citrate of soda prevents coagulation and scabbing by decalcifying the lymph, and that the salt, acting by osmosis, causes fluid to transude from the blood-vessels. Under the influence of this application a clear lymph wells out from every choked sinus, and the local conditions rapidly improve. The situation in the case where we have a carbuncle or brawny swelling of the subcutaneous tissues being, in the respect that the lymph stream is obstructed, essentially similar to those which have just been considered, it must be treated on the same principle. I may perhaps in this connexion make brief reference to a case of Ludwig's angina which came not long ago under my observation. The patient, a middle-aged man, had in the first instance developed what was taken for an indolent furuncle in the parotid region. When, after considerable delay, this was incised no trace of pus was met with, and the tissues were found to be everywhere dry and infiltrated. They remained in this condition and the wound showed absolutely no disposition to heal. Two weeks later the patient, who up to that time had been taking out-door exercise, was suddenly taken seriously ill, and the brawny swelling, which up to that time had been limited to a patch on the left cheek, spread rapidly round under the jaw from one ear to another. A surgeon now carried a series of vertical incisions deep down into the indurated tissues. Twenty-four hours afterwards the patient had lapsed into a condition of low delirium, and the local conditions showed no sign of improvement. When brought to see him I could not, even at the bottom of the gaping incisions, find sufficient moisture to fill the loop of a platinum needle. Film preparations obtained by pressing cover-glasses against the sides of the wound showed very abundant streptococci, and only here and there a leucocyte. Blood drawn from a vein at the elbow with the intention of making a culture clotted instantaneously in the syringe. It was immediately clear that what was most urgently required in this case was, not that further means of antibacterial defence should be furnished to the patient but that such means of antibacterial defence as were already at his disposal should be brought into application upon the streptococci in the focus of infection. It was, with a blood so viscid and coagulable as was that of this patient, quite inconceivable that any lymph should transude into his tissues. It was inconceivable, also, that any transuded lymph should not clot in his lymphatics. Influenced by these considerations, large doses of citric acid were prescribed. 60-grain doses every three hours were prescribed. Six hours after the treatment had been begun lymph began to ooze into the wounds, and by next morning all the wounds had begun to bleed. The administration of citric acid was now suspended. A culture of infecting microbes having now been obtained the opsonic index of the patient's blood was determined. That opsonic index working out at 1·8, and very distinct amelioration having taken place in the patient's symptoms, inoculation treatment was postponed. There was not afterwards any occasion for immunising intervention, the patient making continuous and rapid progress to complete recovery. There is, I think, a lesson in this case which we shall do well to take to heart in connexion with all conditions where the access of lymph to the infected tissues is difficult.

[5] A convenient form of prescribing this is as follows:—℞ Sod. citrat., grs. iii.; sod. chlorid., grs. xxv. Ft. pulvis. Signa.—Dissolve in one ounce of boiling water and when cool apply as directed.

AUTO-INOCULATIONS.

Up to the point at which we have now arrived the reaction of immunisation has been considered exclusively in relation to the incorporation of bacterial vaccines. A moment's consideration will, however, make clear that where, in association with a bacterial invasion of the organism, bacteria or bacterial products pass into the general lymph and blood stream intoxication effects and immunising responses similar to those which follow upon the inoculation of bacterial vaccines must inevitably supervene.

You will immediately discern that it must be by the agency of such auto-inoculations that nature achieves curative effects in bacterial infections. You will discern also that the man who proposes to combat bacterial infections by methods of immunisation must needs be familiar with the conditions under which auto-inoculations occur, and with their effects on the organism. In the absence of such familiarity the immunisator will inevitably lose his way when he sets himself (*a*) to supply the place of auto-inoculations by artificial immunisation, or (*b*) to supplement auto-inoculations where these are inadequate, or (*c*) to place a check upon auto-inoculations where these are overtasking his patient's powers of immunising response.

(*a*) *Types of infection and conditions in which auto-inoculations occur.*—We may conveniently begin by inquiring in what types of bacterial infection and under what conditions auto-inoculations take place. You will, of course, immediately discern the position of affairs in connexion with the contrasted types of 'generalised' and 'strictly localised' infections which were considered in connexion with the expectant method of treatment. In the former class of infections auto-inoculations are occurring in continuous series; in the latter they are conspicuous by their absence. In the case of the type of localised infections which are associated with intermittent constitutional disturbance we have a class of infections which is, in the respect that we have here intermittent auto-inoculations, intermediary between the other two. The auto-inoculations which have been in question up to this point are, let it be noted, what we may speak of as '*spontaneous auto-inoculations.*' In addition to these we have to consider also *artificially induced auto-inoculations.*

Taking our departure from an illuminating observation of my collaborator, Dr. J. Freeman, in connexion with the effects produced on the blood by the massage of a gonococcal joint, we have at St. Mary's Hospital made a systematic study of the conditions under which auto-inoculations can be produced in persons affected with localised bacterial infections.

We have been able to show that auto-inoculations follow upon all active and passive movements which affect a focus of infection, and upon all vascular changes which activate the lymph stream in such a focus. Evidence has been obtained of the production of auto-inoculations by massage and extirpation operations affecting tuberculous glands; by passive extension, massage, and divers surgical operations affecting tuberculous and gonococcal joints; and by scraping operations undertaken in connexion with tuberculous caries and staphylococcal osteomyelitis. Again, evidence has been obtained of the production of artificial auto-inoculations in phthisical patients when they were called upon to breathe deeply and when they were examined by percussion and auscultation. We have also in connexion with a laryngeal affection seen an auto-inoculation supervene upon reading aloud. Again, we have obtained evidence that auto-inoculation may follow upon walking exercise in the case of patients affected with tuberculous disease of the lungs or of the bones or joints of the lower extremity or with severe tuberculous epididymitis. We have also obtained evidence that in the case of patients with spinal caries auto-inoculations are induced by a change from the recumbent to the sitting posture and from the sitting to the erect posture. Lastly, we have evidence that auto-inoculations are produced both by active and passive hyperæmia (application of hot fomentations and of Bier's bandages) to limbs affected with tubercle and streptococcus respectively.

ASSISTANCE WHICH CAN BE OBTAINED FROM ARTIFICIAL AUTO-INOCULATIONS IN THE DIAGNOSIS OF OBSCURE CASES OF LOCALISED BACTERIAL INFECTION.

Let me for a moment here digress from the consideration of the therapeutic problem to consider the assistance which may be derived from the induction of artificial auto-inoculation where a problem of diagnosis confronts us. Rightly

understood, all methods of bacteriological diagnosis in which we arrive at the nature of the infection by a process of induction from a measurement of the bacteriotropic content of the blood are methods which have as their aim the detection of the changes which are produced in the blood by the agency of auto-inoculations. The following three examples will suffice to make this clear. The agglutination test in typhoid fever—whose authorship was claimed by Widal on the plea that the increased agglutinating content of the serum was something other than the result of an immunising response evoked by an auto-inoculation—is now by common consent recognised to be a test which depends—as Gruber, with his collaborators Durham and Grünbaum, from the very first discerned—on the detection of products of immunity produced in response to an auto-inoculation. "The thermostable opsonin test," whose diagnostic value was first demonstrated by Reid and myself, furnishes in like manner evidence of an immunising response to a foregoing auto-inoculation or, as the case may be, to an inoculation of the corresponding bacterial vaccine. Exactly the same thing holds true of the "absorption of complement test" recently so extensively exploited by Wassermann.

It will be clear that in all these cases diagnosis has perforce to wait upon spontaneous auto-inoculation. Such spontaneous auto-inoculation may, as we have seen in connexion with localised infections, be indefinitely deferred. It therefore marks a distinct step in advance when we come to realise that we can, in the case where the focus of infection is accessible, supply the place of the spontaneous auto-inoculation which makes default by the induction of an artificial auto-inoculation.

Let me say in this connexion that we have, by the agency of massage, active muscular movements, Bier's bandaging, or, as the case may be, other methods of artificial auto-inoculation, combined in each case with the measurement of the opsonic index before and after such event, obtained diagnostic results which have up to the present in every case been borne out by the subsequent history of the case. I would note here—for it is germane to the subject-matter under discussion—that we have had recourse to auto-inoculations associated with measurements of the opsonic index not alone for the preliminary diagnosis of the bacterial infection but also for the purpose of obtaining information with regard to the progress of the patient. Where an artificial inoculation can no longer be induced in a focus which previously could be influenced we are entitled to conclude that the focus of infection is extinct. Where an auto-inoculation can still be induced we may be assured that the focus of infection is still aglow.

Discussion of the Comparative Merits of Treatment by Artificially Induced Auto-inoculations and Treatment by the Inoculation of Bacterial Vaccines.

It has, I take it, by this time come home to us all that we have in spontaneous auto-inoculation, in artificially induced auto-inoculation, and in the inoculation of bacterial vaccines the three great agencies by which immunising responses can be evoked in the organism. Comparing first the immunising effects which are achieved by auto-inoculations taken generally with those which are achieved by the inoculation of bacterial vaccines it may, I think, be laid down with confidence that the former method of immunisation is far more expensive—expensive in the sense that the patient obtains a much smaller yield of protective substances for an equivalent of intoxication. Quite a number of other considerations come into account where we have to elect between treatment by artificial auto-inoculations and treatment by the inoculations of bacterial vaccines.

First in order comes the question of an eventual risk of disseminating living bacteria in the organism. It will be appreciated that the employment of auto-inoculations, since here, of course, living cultures are exploited, can never be entirely dissociated from this risk. There is no such risk where we operate with sterilised bacterial vaccines.

Next in order of importance comes the question of dosage. It will be plain that in all auto-inoculations we operate not only with living cultures but with unmeasured doses. Where we have to deal with a very considerable focus of infection, or, failing this, where in connexion with a smaller focus the irrigation with lymph is very searching and unduly prolonged, there will be washed into the general blood and lymph stream an excessive dose of the bacterial products.

Where, on the other hand, we have to deal with a small focus of infection, or where in the case of a larger focus irrigation with lymph is continued for too short a time, too small a vaccinating dose will come into application.

Again, where by reason of a gradual restriction of bacterial growth effected by immunisation, or where by reason of a repeated draining off of bacterial products under the influence of Bier's treatment or of massage, diminishing quantities of bacterial products are available in the focus of infection, there will come into application diminishing doses of vaccinating elements, while there may quite well be required, for the maintenance of adequate immunising responses, undiminished, or, as the case may be, increasing, doses of these elements.

Lastly, we have to keep in view, on the one hand, the fact that methods of auto-immunisation are applicable only in the case of foci which are superficially situated or are positioned in the extremities; and, on the other hand, the fact that the demands which are made upon the patient's time and the work which is thrown upon the controlling physician are, in the case where auto-inoculation methods are employed, much more serious than in the case where inoculations with measured doses of bacterial vaccines come into application.

Let it be noted in conclusion that the issue as between treatment by auto-inoculation and treatment by the inoculation of bacterial vaccines which has just engaged our attention reveals itself upon consideration to be largely an academic issue.

Whether we set out to activate the lymph stream on purely empirical principles, as Bier does with his bandaging, or the ordinary surgeon with his hot fomentations, or the masseur with his massage, or the radio-therapist with his radio-therapy, or the physician with certain of his drugs and hypodermic injections; or whether, as immunisators, we employ these methods with the sole intent of conveying bacteriotropic substances from the blood into the focus of infection, there will in each case be achieved in addition to the local effect which was intended also an unsought artificial auto-inoculation. That auto-inoculation may produce quite unintended effects; unintended effects in the form of an amelioration in bacterial foci remote from the seat of application of the bandage are not unfrequently obtained in connexion with Bier's treatment. Unintended effects are seen also in connexion with massage. I have, in connexion with the massage of gonorrhœal joints, seen such effects both in the form of amelioration and in the form of aggravation of the condition of untreated joints.

It equally holds true that when as immunisators we apply a Bier's bandage, or massage, or any similar device, thinking only of its auto-inoculating effect, there will in each case be achieved, in addition to the general immunising effect which was aimed at, also an unintended beneficial local effect caused by the conveyance of antibacterial substances into the focus of infection.

Question as to whether Inoculations of Bacterial Vaccines may be undertaken in Bacterial Infections which are associated with Spontaneous Auto inoculations.

When the question as to the possibility of inoculating bacterial vaccines with safety and advantage to the patient in septicæmic infections, and in general in those types of infection which are associated with spontaneous auto-inoculations, comes up for discussion we are confronted with the *a priori* objection that, inasmuch as the vaccinating bacterial products are here already circulating in the blood, producing an intoxication, it would be plainly irrational to expect from the incorporation of further bacterial elements anything other than an aggravation of that intoxication.

To this argument two different rejoinders can be made. On the one hand, the objector may be confronted with the favourable results of actual experiments in which bacterial vaccines have been inoculated in septicæmic infections. On the other hand, an endeavour may be made to bring it home to the objector that recourse to the inoculation of bacterial vaccine in septicæmic conditions is not the irrational proceeding that it might at first sight appear.

I may conveniently here address myself to this last task, leaving for future consideration the results which have been actually obtained by inoculation in septicæmic disease. Let me in this connexion hark back to what was said in an earlier part of this lecture on the subject of the probable place of origin of the antibacterial substances. If I am right in supposing that the bacteriotropic substances

are manufactured in the tissues at the seat of inoculation it will be obvious that the conditions for successful immunisation will be less favourable when the vaccinating elements are thrown into the circulating blood than when they are inoculated directly into the tissues. In the latter case they will come into application upon the tissues in a concentrated form, while in the case where they are introduced into the circulation they will come into application upon the tissues only after they have been diluted by the whole volume of the circulating blood. It is accordingly not irrational to assume that there would be a possibility of a septicæmic patient deriving in this respect advantage from the inoculation of bacterial vaccines. Let us suppose it granted that from the point of view of his immunisation such a patient might derive advantage. There would still remain the objection that the inoculation of bacterial vaccines might aggravate his intoxication. The rejoinder to this objection is, I think, suggested by the consideration that local toxic effects on the tissues—such as are produced by the subcutaneous inoculation of vaccines—and a local elaboration of bacteriotropic substances—such as we infer to follow upon inoculation—would be inexplicable apart from a holding back of the toxic substances in the tissues. Conformably with this a much smaller intoxication effect would result from the incorporation of an aliquot quantum of vaccine into the tissues than from the inoculation of that same quantum of vaccine directly into the blood stream. I would put it to you in view of these considerations that the question as to whether vaccine-therapy can or cannot be successfully employed in connexion with septicæmic disease is a question which ought not to be prejudged. It is a question which can be decided only by experiment.

With this discussion I have at last brought to a close my exposition of the main principles of vaccine-therapy so far as these are at present clear to me. You will, perhaps, expect me to say in conclusion one or two words on the subject of the results which have been achieved by the application of this method in actual practice.

ON THE RESULTS WHICH HAVE BEEN ACHIEVED BY VACCINE-THERAPY.

The evidential methods which an author can employ to establish the efficacy of a new treatment are, as consideration will show, the following: (*a*) he can publish examples of refractory cases successfully treated; (*b*) he can publish—where such become available—examples of desperate cases successfully treated; (*c*) he can—where he has treated a sufficiently large number of cases—publish the complete series, giving the particulars of each case and the results of the treatment; and (*d*) he can—if he should be fortunate enough to enlist the interest of other workers—commit it to these to furnish definite proof of the efficacy of his method.

Let me try to bring out to you the strength and weakness of each of these evidential methods.

The evidential value of a number of refractory cases successfully treated lies, as you will discern, in this: that where success has been achieved in connexion with a number of such cases the idea that the results can be due to spontaneous cure may be dismissed. There attaches, however, to this class of evidence always a possibility of doubt, inasmuch as, even when the author is citing a consecutive series of successful cases, the reader will find a difficulty in believing that these were typical cases. He may incline to the view that all the cases cited may have been exceptionally fortunate cases where nature was in each case good enough to step in to effect a spontaneous cure.

In the case where the author has cited desperate cases successfully treated somewhat similar criticisms apply. It will be manifest that if the cases cited by the author were in reality, as he deems, cases in which a cure could not possibly have been effected by the unassisted efforts of nature, the successful event of these cases furnishes complete proof of the efficacy of the treatment. It must, however, always be borne in mind that, in the absence of the evidence of his own eyes to the desperate condition of the patients, the reader may find it easier to believe that the author was mistaken in regarding his cases as desperate, than to believe that that author's treatment can have been effectual in desperate cases.

Quite other are the criticisms which would apply to a statistical record of the event of treatment in a consecutive series of cases. It is, I think, not open to doubt that, apart from any incidental value which it might derive from the inclusion of refractory or desperate cases, such a series of cases would acquire value only if it were placed over against a series of quite similar control cases. Now a series of untreated cases such as would serve the purpose of controls cannot in practical life be obtained. For such a series of untreated controls there would therefore have to be substituted, as the only possible alternative, a series of cases treated by another method, and by another practitioner. Now if this were done the scientific issue would immediately be confused, not only by doubts as to the comparability of the two series of cases, but also by the question as to whether the therapeutic method which was applied in the control cases was hurtful, innocent, or beneficial, and above all it would be confused by the question of personal competition. If you will consider what confusion would in this way be introduced into the issue which we are here concerned to resolve, you will, I think, understand the motives which influence me when I say that I do not propose, either here or elsewhere, to supplement by any attempted statistical proof that presumptive proof of the efficacy of vaccine-therapy which I claim to have already furnished by the citation of numerous refractory and desperate cases successfully treated by the inoculation of bacterial vaccines.

And if you have completely entered into my thought you will appreciate that if I have in this lecture restricted myself in the main to an exposition of the principles of vaccine-therapy, leaving over so short a time to the discussion of the practical results which have been achieved, this has not been without set design. You will understand that it has been done because I felt that, if I could enlist your interest in the method of vaccine-therapy, if I could show you upon what principles it proceeds, and if I could induce here a scientific worker and there a scientific worker to embark upon the task of mastering and carrying out patiently the somewhat delicate technique which is, in my opinion, essential to the proper exploitation of vaccine-therapy, I might perhaps be taking the shortest way to procure for you a verdict on the practical efficacy of the method which should be free from the fallacies which attach to any 'author's account.'

Let me, in conclusion, for I may hereby perhaps induce others to make proof of the method, attempt very briefly to summarise for you my personal experience of the practical results of vaccine-therapy. You will, of course, appreciate that no one formula could possibly apply to all the various forms of infection which are encountered. It will be well for us to commence with the type of bacterial infection which presents the simplest therapeutic problem.

(*a*) *Type of Infection where a Single Species of Micro-organism has Penetrated into the Interior of the Body and has established itself in one or more Foci without causing any considerable Destruction of Tissue or Constitutional Disturbance.*

Typical examples of this type of infection are to hand in the case where tubercle bacilli have effected a lodgment in lymphatic glands, and in the case where staphylococci have penetrated into the subcutaneous tissue causing as yet only suppurative (furuncular) as distinguished from necrotic (carbuncular) changes. In this type of infection all but uniformly successful results have in my experience been achieved by vaccine-therapy. In the case of furunculosis those results are achieved within a period of a few days. In the case of tuberculous infection of the lymphatic glands the period required has varied, according to the extent of the infection and the individual patient's power of immunising response, between five weeks and 18 months. It has on the average ranged about six months.

What applies to tuberculous infection of the lymphatic glands applies in a general way also to tuberculous infection of the testicle, and to simple tuberculous infection of the kidney and urinary passages. It applies also—but on this question I speak with a reserve imposed upon me by a very restricted experience—to early cases of tubercle of the lungs.

(*b*) *Ulcerative Type of Infection.*

In my experience this type of infection—a type which is met with in connexion with the breaking down of nodules in the deeper tissues, and in connexion with the penetration of superficial infections into those tissues—does not differ with respect to its tractability to vaccine-therapy from the type of infection last considered, except only in the case where secondary infections have supervened. If anything—given the case where secondary infections have either been avoided or been successfully combated—an open ulcer is

more tractable to vaccine-therapy than a focus of infection in the deeper tissues which has not yet found vent, or a focus which has not yet penetrated to the lymph-bearing stratum below. It will be clear that as soon as such communication has been effected the lymph stream which has been tapped in the deeper tissues will well up through the floor of the ulcer, coming in contact as it does so with the infecting micro-organisms.

(c) Infections of the Skin.

Infections of the skin fall naturally into two categories. Where the infected skin is comparatively dry and scaly and non-vascular we are dealing with a form of infection which is, in my experience, extremely intractable to vaccine-therapy. A typical example of such an intractable type of skin infection is furnished by the superficial scaly form of lupus which has from the point of view of its superficial resemblance to psoriasis been, very appositely, denoted '*lupus psoriasis*.' Where the microbes affect a region of the skin which is vascular, or where, as in staphylococcal sycosis, the microbes penetrate deep into the skin, we have forms of infection which are very tractable to vaccine-therapy.

(d) Infections of Mucous Membranes and of the Glands and Ducts which stand in Connexion with Mucous Membranes.

Infections of mucous membranes are, in my experience, very readily influenced by vaccine-therapy. Many very successful results have been obtained in connexion with the most various infections of the middle ear, antrum, nasal sinuses, dental alveoli, and salivary glands; also in connexion with coli infections of the intestinal mucous membrane and gall-bladder; and again in connexion with many different infections of the uterus, urinary bladder, and urethra.

I would direct your special attention to two points in connexion with these infections. The first relates to the question of mixed infection. It will be plain to consideration that where we are dealing with bacterial infections of mucous membranes which normally harbour on their surface numerous species of bacteria, the restriction of the numbers of the peccant micro-organism—a restriction which can readily be achieved by vaccine-therapy—is often followed by a multiplication of some other competing form of micro-organism. My second point relates to the case of bladder infections. Here we have generally, in addition to the infection of the mucous membrane, to deal with a bacteriuria. Now it does not by any means follow that the extinction of the infection in the mucous membrane and the abatement of the cystitis—results which are generally readily obtainable by vaccine-therapy—will be followed up by a cessation of the bacteriuria. This last-mentioned result, however, has, be it noted, already been obtained by the agency of vaccine-therapy in a considerable percentage of the cases which I have treated.

(e) Infections of Sinuses.

In my experience very successful results are obtained in these cases when the inoculation of bacterial vaccines is combined with the course of treatment by local lymphagogues which was suggested when we were considering the treatment of sinuses.

(f) Mixed infections.

Before discussing the results which have been obtained by vaccine-therapy in connexion with mixed infections an introductory word may perhaps be appropriate. While the suggestion that mixed infections must be expected in suppurative processes occurring in connexion with surfaces which harbour microbes may quite well be universally acceptable, as not breaking in upon any accepted belief; the suggestion that the question of mixed infection must perforce be considered in connexion with every case of phthisis, lupus, tuberculous caries, tuberculous cystitis, and tuberculous ulceration will, in the very nature of things, be unacceptable to many clinicians. Such a suggestion will be felt to call in question both the clearness of vision of those who in connexion with these diseases have clamoured for anti-tuberculous remedies only, and the critical acumen of those who, without taking into account the fallacies which are incidental to clinical methods, confidently undertake to adjudicate on anti-tuberculous remedies by the observation of their clinical effects upon cases where in addition to the tubercle bacillus other pathogenetic microbes are at work.

Be it acceptable or unacceptable, there is no escape from the fact that practically every case of suppurating lupus is complicated by staphylococcus infection, and that the majority of aggravated cases of lupus are complicated by a streptococcus infection. What holds true of lupus holds true, *mutatis mutandis*, of every tuberculous affection to which microbes can find access.

Having appreciated the magnitude and the far-reaching nature of the issues involved in the treatment of mixed infections we may come to the question of the results achieved in these cases by vaccine-therapy. We have two cases to consider.

(α) *Case where vaccine therapy is directed to the destruction of only one of the infecting microbes.*—In a few instances—notably in two cases where there was found in association with an atypical furunculosis a mixture of streptococci and staphylococci—the extinction of one of the microbes under the influence of the corresponding vaccine has indirectly led to the extinction of the other. This event is, however, extremely exceptional. In most cases the employment of vaccine-therapy directed to the destruction of a single species of microbe leaves the other species quite unaffected. It may even—and this applies in particular to surface infections of mucous membranes or ulcers—conduce to the multiplication of the other—i.e., the originally competing microbe.

(β) *Case where vaccine-therapy is directed to the destruction of all the infecting microbes.*—Where in cases of mixed infection measures are taken to immunise the patient against each of the different infections very successful results have been achieved. Successful results have been achieved notably in the case of lupus, cystitis, and endometritis. While naturally the task of the immunisator is more laborious and more intricate in the case where two or three different vaccines are employed, it would seem that the organism of the patient does not find the task of responding to a series of different vaccines (always supposing that each of these is administered in appropriate and properly interspaced doses) more difficult than the task of responding to one variety of vaccine only.

(g) Generalised Infections.

In association with my fellow-workers I have up to the present treated by vaccine-therapy some half-dozen cases of Malta fever and an equal number of cases of streptococcal septicæmia. In each of the cases of Malta fever the course of the disease would seem to have been favourably influenced—the clinical improvement occurring in each case in association with an increased development of antibacterial substances in the blood. In the cases of streptococcal septicæmia the results have been as follows: In two cases—one of these being a case of malignant endocarditis—a complete cure was achieved, in each case in association with a very satisfactory immunising response. In a third case—also a case of malignant endocarditis—the high temperature which had lasted for three months before vaccine-therapy was resorted to came down to the normal under the influence of the inoculations, the patient making an excellent immunising response. In this case death by cardiac complication occurred on the fourth day after defervescence. In three other cases of streptococcal endocarditis the patient succumbed, having in each case failed to make any immunising response to the inoculations.

UNIVERSITY OF CAMBRIDGE.—The General Board of Studies will proceed early in the Michaelmas term to appoint to a University lectureship in botany which will be vacant by the resignation of Mr. A. W. Hill. The annual stipend is £100. Applications should be made to the Vice-Chancellor before Oct. 11th.—The dates for the examination in sanitary science are: Part I., Wednesday, Oct. 2nd; and Part II., Monday, Oct. 7th.

THE ROYAL CORNWALL INFIRMARY, TRURO.—The annual meeting of the subscribers of this institution was held at Truro on August 12th. The medical report stated that during the past 12 months 417 in-patients had been admitted, a decrease of 56 compared with the preceding year; 1057 out-patients had been treated compared with 1165 in the previous twelve months. The financial statement was satisfactory and showed that a legacy of £1000 had been received from the executors of the late Mr. W. Jackson. The report added that 119 patients had been sent to the convalescent home at Perranporth. Mr. G. Petherick has recently given a complete x ray apparatus to the infirmary. The meeting decided, with the approval of the medical staff, to provide a private nursing institution in connexion with the infirmary.

A Clinical Lecture

ON

STRICTURE AND TRAUMATISM OF THE VERMIFORM APPENDIX.

WITH A NOTE ON FOREIGN BODIES IN THE APPENDIX.

Delivered at St. Thomas's Hospital on May 30th, 1907,

BY WILLIAM HENRY BATTLE, F.R.C.S.ENG.,
SURGEON TO THE HOSPITAL.

GENTLEMEN,—A narrowing of the lumen of the appendix is very commonly met with when it is opened after removal for symptoms of disease. A small part may be involved or nearly the whole length. Again, there may be found more than one stricture which has interfered with the escape of the contents of the appendix. These strictures may be divided into two great classes—the organic, where there is gross change in the appendix narrowing its lumen, and the functional, in which the appendix is not grossly diseased. In the first class the stricture is most frequently due to ulceration of the mucous membrane, which has subsequently healed and the scar contracted. In a less common variety the stricture is due to a cellulitis of a segment of the appendix, where the mucous membrane is not destroyed. In this case the fibrous tissue is between the mucous membrane and the peritoneum. In a third variety the narrowing of the appendix may be due to the contraction of peritoneal adhesions or to the presence of pathological processes (e.g., carcinoma of the cæcum) which have secondarily involved the appendix. The cases in which the lumen of the appendix is narrowed in one place, though the organ is healthy, fall into two great classes. In the first the appendix is kinked or bent, which functionally narrows its lumen, though it is not obviously diseased. Oblique insertion of the appendix into the cæcum also comes under this head. In the second class the appendix is pressed from without, and its contents dammed up, as in carcinoma of the cæcum.[1]

It may be stated that cases of stricture are not often found without a complication of chronic inflammation of the wall, so that the appendix with a strictured lumen and a stiffened wall is very greatly hampered in its attempts to empty itself. An appendix so circumstanced is especially liable to trouble, for a recrudescence of inflammation may cause a complete closure of the passage and a rapid accumulation of inflammatory fluid and pus beyond, which will escape by ulceration or gangrene of the wall of the appendix, giving rise to the most serious inflammation of the peritoneum with which we have to contend. A definite organic stricture is found in more than half the cases accompanied by local suppuration in the surrounding peritoneum. Less acute processes may be followed by the formation of a distended appendix beyond the stricture into a mucocele or empyema of subacute character.

CLINICAL SIGNS.

You will naturally want to know the signs, if there are any, which enable us to recognise a strictured appendix before removal from any other form of disease of that part. In the majority of instances it is impossible because a single attack of appendicitis due to stricture resembles one caused by inflammation of the part having a different cause, but when you are confronted with an attack which is more severe than others which have preceded it, whilst the others had given evidence of increasing severity, as they increased in number, then you will not be far wrong if you venture the opinion that the appendix is strictured. Some will have had vomiting as an initial symptom, whilst in others the pain will have been severe, whilst frequently there will be no local swelling noticed until the latest and most severe attack. Not uncommonly you will find in the situation of the appendix a thickening or lump which indicates the point where inflamed omentum became adherent to the appendix and closed a perforation which had occurred in it, as usual, beyond the stricture. In these cases the stricture was probably situated towards the distal end of the appendix.

It is of interest to note the severity of the stricture in some cases in which the appendix is removed after a single attack of inflammation. The patient may positively affirm that the attack from which he has just recovered is not only the only one he has had but that he has never had any trouble before in the abdomen. This may be confirmed by the friends through ignorance of the real facts of the case.

There is here a long appendix which I removed on April 30th from a man, aged 19 years. It is, as you can see, tightly strictured at the proximal end, and at the time of removal was tensely distended with about five drachms of fluid fæcal matter and inflammatory products, so that it extended like a bent fore-finger from its origin to an attachment in the retrocæcal fossa. Here it was buried and firmly bound down by old adhesions. Not far from the proximal end was a patch of lymph underneath which was the discolouration of impending gangrene. All muscular contractility seemed to have gone from this appendix, and when emptied the walls were thin, soft, and flaccid. This was 20 hours after the commencement of symptoms and shows the result of excessive distension. Here it was quite apparent that there had been pre-existing trouble about the appendix of which we could get no history. It was stated that he had had "abdominal chills," but never any pain with them. A more accurate history was obtained later, making it very probable that the patient had made light of his troubles during "the chills" for fear of alarming his parents; and that they were ignorant of the true facts of the case. Indeed, from his account he had suffered a good deal during the previous two and a half years. The first attack of definite abdominal trouble lasted a week and was called "typhoid"; a more severe illness had occurred five months before the removal of the appendix, but before and since this illness he had suffered considerably at times from "stomach-ache," especially on exertion. You can imagine the effect on the peritoneum of this quantity of fluid had it escaped into the peritoneal cavity; luckily we were able to prevent this and the case ran a normal course.

Several cases could be cited which show this want of proportion between the extent of the disease and its apparent duration. One of them was that of a medical man who is a careful and unprejudiced observer. In November, 1904, he had an attack of pain in the abdomen running down to the penis and groin but not followed by any alteration in the character of the urine. It lasted a few hours and he did not take his temperature. On Friday, March 3rd, 1905, he had another attack lasting longer. Next day his temperature was 101° F. and on the day after that 99°. He had no vomiting in either attack but much pain, whilst during this illness he had noticed some swelling. On the former occasion he went about doing his visiting but this time he was not permitted to do so. He came to see me on the 7th and presented a tender swelling of about the size of the forefinger just above Poupart's ligament on the right side. When the appendix was removed on March 16th it was found adherent to surrounding parts, whilst the omentum was attached to, and covered, a recent perforation. It was unusually thick-walled and when opened we found in it a stricture which almost obliterated the lumen to within three-quarters of an inch of the extremity, beyond which was the perforation. This stricture was about three-quarters of an inch long. He has had no abdominal pains since.

CONCRETIONS AND THEIR EFFECTS.

In connexion with the subject of stricture of the appendix it would, perhaps, be well to discuss briefly the causation of such a condition, more especially from the point of view of the possibility of traumatism as an exciting cause. For this purpose we must consider the various bodies which form in, or enter, the appendix from the large bowel. The husband of one of my patients advised his wife to have the appendix searched after removal for anything she had lost during the preceding six months. Certainly the list of things which find their way into it is a very large one, but we may exclude from it, so far as our purpose to-day is concerned, the intestinal parasites. It is not usual to find foreign bodies forming part of a concretion; when they do so the combined result is generally that of an ordinary concretion. These concretions are composed of fæcal matter which has undergone a hardening and excited a secretion of mucus from the surrounding glands. In experimentally isolated loops of intestine a somewhat similar process can be seen. Structurally, these calculi sometimes have for a nucleus some foreign body, but much more commonly a harder fæcal

[1] Battle and Corner: Surgical Diseases of the Appendix, &c., p. 41.

mass, which grows by the inspissation of mucus, &c., deposited on it by the tubular glands. It is very probable that most of them are formed as the result of the action of micro-organisms, as in the case of gall-stones. This outer coating of moister, fresher material offers to the organisms which are present, or which gain access from the cæcum, a suitable nidus for their growth.

The presence of a concretion is therefore a danger and a pretty sure indication of the advisability of the removal of the organ. They are most common between the ages of 15 and 30 years, the period of the greatest frequency of appendicitis, especially in its more severe forms. "It is well known that such lymphoid structures as the tonsils may become tough and fibrous, without the occurrence of any acute inflammatory attack. So will it be to some extent with the appendix, and the results of such chronic inflammatory change will be, at least, impairment of the completeness of peristaltic action. As a result, cæcal contents may enter the interior of the appendix from above, and the material already in that organ will be imperfectly expelled. This may be aided or produced by the anatomical way in which the appendix is inserted into, or originates from, the cæcum. And the common state of affairs is to find a functional stenosis of the lumen such as that arising from kinking or obliquity of the appendix—i.e., not an intrinsic but an extrinsic stricture. The retained appendicular secretion will later become inspissated. The presence of concretions in calculi may therefore be regarded as evidence of some pathological change."[2] Such a concretion may remain quiet and this is especially so in older people, in whom lymphatic nodules atrophy, the glandular secretions become more scanty, and, we may add, the mode of life less active. In these circumstances the concretion may become quite dry and inert. Their size varies considerably, probably those the size of a cherry-stone are the most common. When I was a student it was taught by some that the cherry-stone was frequently found in the appendix and some of us called it "the trap to catch a cherry-stone." Examination has, however, proved their invariably fæcal origin.

The number of concretions that may be found in any appendix is uncertain; although one is usual I have seen as many as five. To consider that the presence of one of these in an appendix abscess will obviate any necessity for removal of the appendix is, therefore, a mistake. You cannot tell how many are left behind, for they are very rarely faceted. Moreover, it by no means follows that the appendix which remains is not a source of danger on account of its diseased condition, quite independently of the escaped concretion.

The appendix removed from the patient operated on during Tuesday afternoon, May 14th, at the request of Dr. Hector Mackenzie, is a good example of the termination of some of the cases of this kind, where a concretion is associated with a strictured appendix. At the operation the signs of "suppuration" and peritonitis were immediately visible, yellowish, thin, very offensive pus escaping at once on the opening of the peritoneum. The appendix could be felt lying in adhesions to the outer side of the cæcum. To get at these it was necessary to enlarge the wound. The tip of the appendix was lying in front of the right kidney and presented at its apex a gangrenous opening in which a concretion of the size of a cherry-stone was engaged. In order to remove the appendix it was divided between forceps at its proximal attachment, then the meso-appendix separated towards the tip, vessels being clamped as they showed. The attachment to the cæcum was very close and firm in parts and the appendix had to be separated as from a solid bed. When opened up it was found to be a good deal thickened in all its coats, whilst the lumen was very much diminished in size by fibrous contraction which extended from within an inch of the tip upwards towards the cæcum for about half an inch. In the distal part there was the concretion which had not been able to effect its escape, whilst the lining membrane was changed into a gangrenous ulcer which had perforated the wall. In this instance a smaller concretion was found outside the appendix floating in the pus.

Here the concretions were retained in the end of the canal by the stricture, which had been the result of extensive inflammatory changes, not confined simply to the site of the stricture or to the mucous membrane. As the concretion grew in size, and the inflammatory exudation became organised into fibrous tissue and contracted, there came a time when the outer surface of the concretion, crowded with bacteria, came into firmer contact with the mucous membrane surrounding it without possibility of escape from the embrace, and ulceration with quick bacterial invasion of the surrounding parts ensued, ending in gangrene and perforation, a process not unlikely to have been hastened by the impossibility of escape of the inflammatory exudation and pus which would distend the part beyond the stricture. Probably the larger concretion completely blocked the strictured lumen whilst the smaller one was forced towards the tip, as it was the one to escape when the ulceration gave way. This patient has done well. A similar condition results if the concretion is kept in by swelling of the mucous membrane to its proximal side whilst fluid accumulates beyond.

[2] Op. cit., p. 52.

THE EFFECT OF EXTERNAL INJURY IN PRODUCING APPENDICITIS.

A very interesting question is the influence of the presence of a fæcal concretion in determining an attack of appendicitis after injury. Dr. H. Kelly collected a series of 50 cases in which it was alleged that an attack resulted as a consequence of injury.[3] "In the majority of cases pain was complained of immediately or else within a few hours. It is noticeable that whenever an interval of weeks or months elapsed between the accident and the well-defined symptoms of appendicitis there were more or less well-marked symptoms of continuous digestive disturbance or, on the other hand, there was a history of repeated attacks following the injury and before the patient came under observation for appendicitis." "In 40 out of my 50 collected cases the appendix deviated in some way or other from the normal and 30 out of the 40 abnormal appendices were noted as containing concretions; in seven of the remaining which were without a concretion there was evidence of old adhesions; of the last three, one was flexed on itself, one was cystic, and one was unusually short and wide. No case has as yet appeared in which it has been shown that an injury *ab externo* has produced an appendicitis in a previously normal appendix."

The importance of this question will probably be more evident to all when the new Employers' Liability Bill with its more comprehensive compensation clauses comes into operation, for it is not unusual to find acute appendicitis as well as more serious conditions, such as perforations of the digestive tract, ascribed by the domestic servant to strain or to overlifting. Now how much more will this be the case when the statement may carry with it a large sum for compensation to the sufferer or her friends. Cycling and motoring have been freely accused of causing appendicitis, but there is nothing in my experience that is so potent a factor in developing that condition, when latent, as the riding of a motor bicycle. Here, again, there is pre-existing disease of the appendix.

In some instances the concretion contains some foreign substance which has been caught up and hidden in the hardening mass after its entrance into the appendix. In all probability many a wanderer beyond the valve of Gerlach is swept back again by a gush of fluid from the irritated chamber into which it has intruded so unexpectedly and passes away with the stream outside, leaving no evidence of its visit.

INCREASE OF DISEASE OF THE APPENDIX IN RECENT YEARS.

There can be no doubt in the minds of those who have been at all intimately concerned in the surgical work of our hospitals during the last 25 years that appendicitis is much more common in every one of its manifestations than it was at the commencement of that period or even half-way through it. The increased number of people who are now enabled to live to the age when its manifestations are most common, in consequence of the greater efficiency of public hygiene and the care of infant life, will not account for it. We used to see a limited number of cases of acute peritonitis which were called idiopathic, when no post-mortem examination was made, but those examined were almost invarably found to be dependent on gross lesion of the appendiix. Dr. Samuel Fenwick only found 19 cases of disease of the appendix in the post-mortem records of the London Hospital over a period of 40 years preceding 1884. The number of cases of acute peritonitis has increased, but the naked-eye appearances are not changed as regards the disease of the appendix on which that affection depends. Yet it is more especially in connexion with the milder

[3] Kelly and Hurndon, p. 806.

attacks that there is a change—and a very marked change indeed. It is no use saying that the cases were overlooked, that is to reflect on the diagnostic acumen of men like Peacock, Murchison, Bristowe, Ord, and Payne amongst the older physicians, and to some extent also upon the members of the staff to whom the care of the medical cases is now entrusted. It is very easy to make the charge, "They were overlooked," but the facts are against the truth of it. We are therefore compelled to the only conclusion that is possible, and that is that disease of the appendix is a much more constant source of trouble now than it was; in 1893 the name "appendicitis" appears for the first time in the hospital reports, only three cases being tabulated under that head, whilst last year the number was nearer 250. Cases of perityphlitis were tabulated in the medical report but were not numerous.

Why is this? We may take it the human body as a germ-carrying organism is much the same now as it has been from the earliest time; also that the bacillus coli of the individual with its potentiality for mischief has been much the same through the ages as the specimens which are captured in the digestive canal or in the peritoneum surrounding an inflamed appendix at the present day. That it was in past times a very virulent organism may be taken for granted, for cases of fulminating appendicitis were known years and years ago and have doubtless caused the hanging of more than one innocent person on the accusation of poisoning.

SOME THEORIES OF CAUSATION.

There is a general agreement amongst pathologists that appendicitis is a disease caused by the action of the germs which should normally be confined to the interior of the intestinal tract. It is only when they gain admission to the tissues outside the epithelial lining of the tract that they become dangerous and cause inflammatory changes. Is there anything in our way of living or in the food which we eat that can in any way account for the fact that they pass this epithelial barrier more frequently now? Has anything been introduced during the last 30 years or so which can be pointed to as a possible cause? We do not eat anything like the same amount of meat as our forefathers of a century ago did nor are our dinners as a rule so long. We cannot, therefore, blame butchers' meat, as some appear anxious to do, although the amount eaten may be out of proportion to the exercise taken. There is in the museum of the Royal College of Surgeons of England a small lump of solder which was found in the appendix of a soldier during the South African war, but this is probably an example of the evil of the hurried bolting of tinned meat, and the foreign body would have been detected in ordinary circumstances.

Through the kindness of Mr. Eisenmann I was enabled to make some inquiry into the value of the opinion that the enamel of cooking vessels was a likely source for particles which might perhaps lodge and damage the mucous membrane of the appendix. It has been stated that the enamelled ware has changed its character; that in the first instance it was very good, but the price was high. There was a great demand for a lower-priced article and soon this was supplied, only the lining enamel was of inferior quality and apt to chip and crumble away during the preparation of food. A paper [4] had an article on this subject by Dr. Villaret of Posen, who, after an investigation of the subject, came to the conclusion that there was no evidence of detachment of particles which would do any harm.

The question for solution is whether there is anything which could produce a superficial lesion and yet give but little evidence of its action—something which is universally liable to be taken by old and young, rich and poor, by the child just able to move about and by the octogenarian, by the cottager on the hill-side and by the prince in the palace; something which is generally spread over the surface of the civilised earth, and something which is not likely to attract the attention of the person taking it. At one time I thought perhaps it would be found that some of the harder samples of wheat might during the process of grinding produce siliceous particles which could resist the action of the gastric juice and cause trouble in this way. Mr. Jago, the well-known expert on wheats and flour, kindly called and talked the question over with me; he considered that even the hardest of Arabian wheats are finely ground by the rollers now used and the product satisfactorily screened. Some time ago Mr. J. Bland-Sutton [5] wrote an interesting paper on foreign bodies in the intestines and gave an account of the care which was exercised in the mills to exclude foreign substances. Before wheat is passed over the rollers it is passed over magnets, which extract from it all pieces of iron which have found their way into it during its journey from the field to the mill. Other foreign bodies are also extracted.

A POSSIBLE CAUSE FOR THE FORMATION OF STRICTURE.

The question then presented itself, Is it possible that during the process of grinding the flour some foreign substance has been or can be introduced? I have been informed that roller-milling was started in Austria many years ago and that in the first instance porcelain rollers were employed; it was then taken up in America and steel or iron rollers were substituted; that the primary rollers are fluted in order that they may exert a more crushing effect on the hard wheat which is ground by them; and that in a variable time this fluting is worn away and a fresh roller has to be put in. There is a difference of statement as regards the durability of these rollers, which it is difficult to understand, excepting on the supposition that they vary much in their hardness. Of course, there is an immense amount of flour put out by every mill as a result of the work of any two of these fluted rollers in comparison with the fragments of steel or iron which would come away at the same time. Moreover, these fragments would necessarily be widely scattered, and if of any appreciable size only present in the flour which had been passed through the larger screens. I imagine that a small, irregular particle of steel or iron escaping from the faulty or worn roller might pass into the digestive tract by the mouth, it would escape destruction in the alimentary canal, and, when it had passed through the ileo-cæcal valve, fall downwards by its own weight, going sometimes into the opening of the appendix. In any situation it would come into contact with mucous membrane and probably be washed on again by the fluid contents of the part and disappear. This would not be unlikely to happen in the appendix, for a muscular contraction would follow as a reflex result of the localised irritation caused. Some abrasion of epithelium if the foreign body had lodged between folds of the mucous lining might be expected. Increased secretion of mucus would be the result and again the foreign body might be carried away in the right direction and disappear. Sometimes this abraded surface would not heal, and unusual exertion or a stretching of the cæcal wall as a result of over-eating would throw a strain on the part. The abraded surface would give the bacteria their opportunity and the added strain cause them to spread more widely when they had passed the breach. Even then the parts might recover and the patient be unaware of anything wrong, but following on the inflammation with abrasion of the mucous membrane would come fibrosis with its resulting contraction, possessing unusual importance in a canal with such a small lumen.

It is interesting to note that this lesion of the appendix is never constant in position like stricture of the urethra. Sometimes it is at the orifice, more commonly at the distal extremity, and this in appendices which resemble one another very closely and are not deformed or displaced. Of course the extent of the disease varies very much in different individuals, as does also the number of strictures. Having this theory in mind, a look-out was kept for a possible body of the kind imagined, it being thought that perhaps one might be found which had escaped expulsion, but for a long time without success.

A boy, aged 13 years, was in Leopold Ward from Feb. 21st to March 11th, 1905, for abdominal pains of 14 months' duration, worse after walking. He also gave a history of dysuria. A careful examination was made of the urinary system by means of the x rays, &c., but nothing abnormal was found in it or in any other part of the body. Advice was given against operative interference, although his mother was very anxious that something should be done. He was readmitted on March 15th because his mother brought him back, saying that he had been much worse. An attack of pain had come on after his return home and he had been sick and giddy with it. It was definitely on the right side of the abdomen, and although not severe enough to double him up, still it had been very bad and paroxysmal. There was nothing discovered to indicate the source of the pain, but at the request of his mother the abdomen was explored on March 17th. As a thickening could be felt in it and nothing else presented any abnormality the appendix was removed. It was pelvic in position but not adherent.

[4] Deutsche Medicinische Wochenschrift, Jan. 1st, 1904.
[5] THE LANCET, Oct. 24th, 1903, p. 1149.

It contained a soft fæcal concretion in the distal part and a slight inflammatory thickening in the wall to the proximal side of it. Two calcified glands were removed from the mesentery of the small intestine. When the appendix was examined microscopically superficial erosion of the mucous membrane was found. In the concretion was a small irregular fragment of iron, the nature of which was confirmed by Mr. J. E. Adams, then surgical registrar.

We had in this case the early stage of the formation of a stricture, the abrasion of epithelial membrane with a thickening outside, and a foreign body which had been regarded as likely to produce such a condition if it were ever present in the appendix. Had it done so? The condition of affairs is very like that of someone who visits a friend's house and finds from the disarrangement of its contents evidence of attempted burglary. He searches about for a possible intruder and finds a man he has suspected for some time as a man likely to do such a thing if given the chance. The man who was discovered would deservedly be given in charge on suspicion and further inquiries made. A medical man who knew that I was interesting myself in the question of foreign bodies of this kind when under surgical treatment in London produced a piece of metal which he had found in his bread at lunch. It was of somewhat similar kind.

A statement was recently made on the authority of an American physician in an English paper that appendicitis was caused by white flour. The reasons given were the following. When white milled flour was introduced into the cities of a certain State appendicitis began to be prevalent, but it was not yet found in the country. As it became cheaper it was introduced into the villages and appendicitis became common there, yet the negroes escaped. When, however, the flour became so cheap that it was more profitable to buy it than to grind the corn at home, then negroes began to suffer from appendicitis.

It must not be forgotten that the greater prevalence of appendicitis was heard of first in the United States, from which so much of our flour comes, before we saw much of it, and it had been a good deal written about before the reason for doing so was apparent by any increase of the disease in this country. A few years ago windmills were conspicuous in every landscape in England and our corn was ground between stones in the districts where it was grown. It can no longer be ground by the old methods at a profit and flour mills are only to be found in the towns, worked by machinery. But most of our supply comes ready for the market from beyond the seas and it is mostly ground up by metal rollers. The frequency of the disease in certain districts and families would be accounted for by the delivery of flour to that part by a certain baker who would get his flour from regular agents, who in their turn would patronise certain mills. The particles caused by the breaking up of a roller in consequence of a flaw or imperfect material would flow therefore to a definite area of distribution.

Such particles as I have imagined to come from the rollers would necessarily be comparatively few if the amount of flour is considered on the output of any large mill. They would not do harm in the stomach or intestine, but when they did lodge in the human appendix would be dangerous from the small size of its lumen. The remedy would be the use of magnets to withdraw such particles from the flour on its way from the rollers to the bags, for although such fragments might not pass the screens through which the finer qualities pass, they might penetrate some of the others, and various qualities might be mixed again by those through whose hands they went on their way to the consumer.

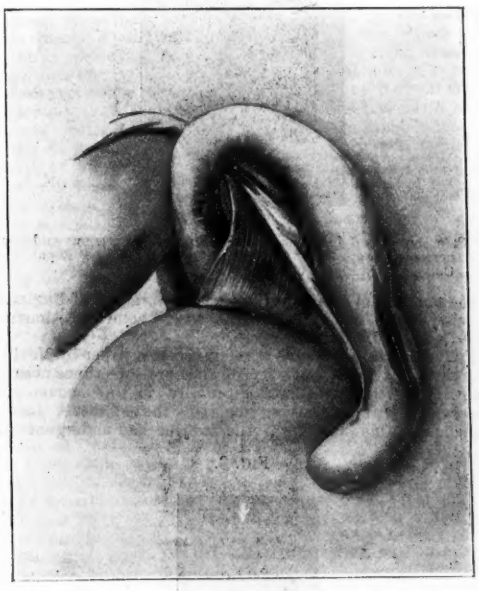
A NOTE ON FOREIGN BODIES IN THE APPENDIX VERMIFORMIS.

The behaviour of a foreign body in this part of the digestive system naturally varies very much according to its nature and size, and it is interesting to observe the history of some cases in which even so-called "innocent" bodies have been found, such as hairs. At times, then, the visitor does not present irritating qualities and is tolerated, no reflex action being excited, or perhaps there is some stiffening of the appendix as a result of previous inflammation, and it cannot give response to the stimulus which it has received, and so clear itself of the intruder.

Dr. J. A. Macdougall[6] of Cannes has related an instance which is the best I know showing the disturbance excited by the impaction of an irritating foreign body in the appendix. A Frenchman, aged 30 years, who never previously had any abdominal trouble, was whilst dressing in the morning conscious of some uneasiness in the lower abdomen on the right side. Jokingly he told his wife that he had an "*appendicite*," but as the crampy feeling quickly passed away so did his thought concerning it. An hour after his midday meal, when walking in the street, he was seized with such intense abdominal pain that he became rapidly collapsed. He was greatly affected, as evidenced by his complaints, by the pale, clammy state of his skin, by his anxious, drawn face, by his quick, feeble pulse, and by the intense rigidity of the muscles of the right iliac fossa. Six hours later, after a dose of morphine, the severe pain returned with great vital depression, so that one physician did not think it was worth while to do any operation. The state of the appendix appeared to be normal and so did everything around. "Its proximal third was, however, harder, thicker, and firmer than the rest of the organ, but it bore on its surface no evidence of any notable lesion. On examination after removal it was discovered that a grain of barley still encased in its outer husk was lying transversely to the axis of the appendix with its sharp and pointed extremity buried in the submucous and muscular tissue and stretching—without perforation—the peritoneal covering of the organ." He regarded it as a case of true appendicular colic and considered the personal element was a very important one in the case.

Dr. Mitchell has written[7]: "The appendix would seem to act especially as a trap for pointed bodies and for small heavy objects like shot or bullets. Conspicuous amongst pointed bodies are pins, which are the commonest and at the same time the most dangerous of all foreign bodies."

FIG. 1.



A pin in the vermiform appendix, which perforated it by ulceration and caused a fatal peritonitis. (From a specimen in the museum of St. Thomas's Hospital.)

Pins enter the appendix head first as they have come along from the stomach, but they cannot escape in the same way, and perforate by ulceration the wall of the appendix sooner or later, producing localised abscess or more frequently a fatal peritonitis[8] (see Fig. 1, from a specimen in the Museum of St. Thomas's Hospital). In a large proportion of these cases hepatic abscess has been a complication.

Of the heavier bodies which enter the appendix by far the most common are shot pellets, obtained through the hurried or careless eating of rabbits or game. If the shot remains

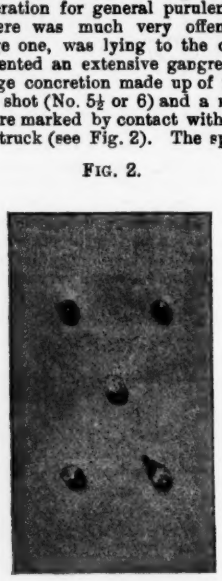
[6] THE LANCET, Feb. 21st, 1903, p. 506.

[7] Johns Hopkins Hospital Bulletin, 1894.

[8] It is of interest to recall that the first case of disease of the appendix known, the one recorded by Mestivier in 1759, was caused by a large pin, which had produced ulceration and peritonitis.

free in the appendix it apparently causes no injury; probably when incorporated with a concretion it chiefly produces an effect by the increased weight which it adds to it. The history of one such case is as follows. A woman, aged 60 years, was seen for the first time on Feb. 22nd, 1906, and the appendix removed. She was a stout patient with a history of bilious attacks, and jaundice on one occasion. Four days before operation severe abdominal pain came on when sitting quietly in church, ascribed to colic from eating dressed crab on the previous evening. The abdomen was greatly distended and motionless. Operation for general purulent peritonitis was performed. There was much very offensive pus. The appendix, a large one, was lying to the outer side of the cæcum and presented an extensive gangrenous perforation. There was a large concretion made up of fæcal material in which were five shot (No. 5½ or 6) and a metallic particle. Some of them were marked by contact with the bones of the animal or bird struck (see Fig. 2). The specimens are now

FIG. 2.



Five shot found in a concretion lying in a gangrenous and perforated appendix. (From the museum of the Royal College of Surgeons of England.)

in the museum of the Royal College of Surgeons of England. It was stated that this patient was a somewhat hurried eater, also easily flurried.

Kelly and Hurndon give a reference to a paper by Hevin [9] who says, "A great quantity of shot are sometimes noticed collected in the intestines, especially in the cæcum and appendix, without having caused the slightest inconvenience." One wonders if the subject had undergone the

FIG. 3.

ound in a concretion in an inflamed appendix.

old-fashioned treatment for supposed intussusception. The same authors refer to a case by Holmes, where 122 robin shot were found in the vermiform appendix.

Apple-pips, grape-seeds, and other vegetable substances are apt to find their way past the valve of Gerlach and may be found loose or incorporated in a concretion. The illustration (Fig. 3) (taken from a specimen in the museum of the Royal College of Surgeons of England) is of some fig-seeds which formed part of a concretion, the history of which is as follows. The patient was a muscular and active man, aged 35 years, who came under observation in 1906. There was a history of a definite attack of appendicitis, with marked pain in the iliac fossa, but no vomiting, two and a half years before. He was in the house from 10 to 14 days and found that any attempt to lift the right leg occasioned pain. He was unable to do much for six weeks afterwards, and almost ever since had had aching in the appendix region after exertion. The appendix was 4½ inches long, covered in with peritoneum, and having an S-shaped curve over the brim of the pelvis, up and then down. The tip was buried in the wall of the cæcum. On section there was evidence of former inflammation and the distal one-third was diminished in size. A small concretion was present containing portions of fig-seeds. The patient was very fond of figs. The presence of the irregular broken seeds appears to have made the concretion more irritating than is usual.

Hairs are occasionally found forming the nucleus of a

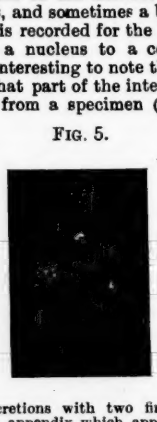
FIG. 4.

Hairs caught in a concretion removed from a gangrenous appendix which caused fatal peritonitis. (From a specimen in the museum of the Royal College of Surgeons of England.)

concretion and may be obtained from many parts of the body. Bitten off ends of the moustache in men, hair from the head in females, and sometimes a bristle from a tooth-brush. In 1790 [10] it is recorded for the first time that a hair was found forming a nucleus to a concretion within the appendix, and it is interesting to note the effect produced by such hairs when in that part of the intestinal canal.

In Fig. 4, taken from a specimen (No. 2559 D) in the

FIG. 5.



Four minute concretions with two fine hairs attached, removed from an appendix which appeared healthy but had given rise to symptoms of appendicitis. (From the museum of the Royal College of Surgeons of England.)

museum of the Royal College of Surgeons of England, the hairs are fine and long. They are mainly two in number and caught by concretions which were in a gangrenous appendix at the time of removal. The patient was a little girl, aged three and a half years, under my care in St. Thomas's Hospital, with extensive purulent peritonitis, which proved fatal, in April, 1904. The hairs evidently came from the head of the child.

In Fig. 5 the longer of two hairs was a stiff bristly hair,

[9] Mémoire de l'Academie Royale de Chirurgie, 1743, tome i., p. 640.

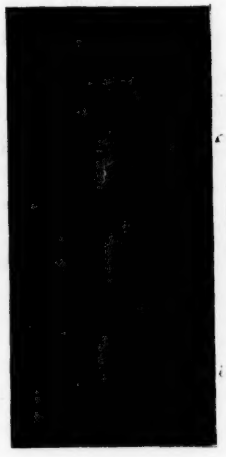
[10] Encyclopédie Méthodique.

the origin of which was doubtful. (No. 2559 G, museum of the Royal College of Surgeons of England.)

A woman, aged 24 years, was admitted under my care into St. Thomas's Hospital on Jan. 25th, 1904. She stated that for three and a half years she had suffered from recurring attacks of pain in the right side of her abdomen. These attacks had been of a more severe character of late. During an attack she was feverish, felt sick, and had severe pain in the right iliac region. She had had very numerous attacks of this nature and stated that she had never been free from pain for more than a few hours during the last three weeks. When the appendix was removed it appeared normal, but contained a short dark hair with follicle attached. The following is the description of the specimen in the museum catalogue: "Four minute concretions, in connexion with two of which there is a fine straight hair, the longer of which is $\frac{3}{8}$ in. long."

In a third case the hairs were apparently swallowed during the course of the patient's occupation, although the man denied it. They were not human hairs. (See Fig. 6, from the museum of the Royal College of Surgeons of England.)

FIG. 6.



mall fæcal concretions, one of which contained numerous bristles, removed from an inflamed appendix. (From the museum of the Royal College of Surgeons of England.)

A youth, aged 19 years, a photographer's assistant, was admitted on April 13th, 1907. He stated that three years ago he first had pain in the iliac fossa which lasted for about three weeks. About six weeks ago he again had pain in the same part; it came on suddenly and lasted for about three days; it then became better, but the patient kept having attacks of pain for about two and a half weeks; the attacks came on about four or five times a day and lasted for about from half an hour to an hour. He was not sick but suffered from constipation. The pain was always localised to the right iliac fossa. On examination there appeared to be more resistance to pressure than normal, but there was no tenderness. The appendix was found at the operation (on April 17th) to be three and a half inches long, hanging over the pelvic brim. The meso-appendix was very vascular but without adhesions. The lumen was patent and the mucous membrane was catarrhal. Several soft fæcal concretions were present, as was also a considerable amount of soft fæcal matter. There were numerous multi-coloured bristles in one concretion (? camel's hair brush).

In a fourth case there were several minute hairs mixed up in a concretion; they were probably human and might have been bitten off from the back of the hand. The patient, a boy, aged 13 years, had his appendix removed on March 30th, 1906. Six months before he had had an attack of abdominal pain, most severe over the appendix region. He had had other attacks since lasting from seven to ten days. A sort of aching over the appendix region since the first attack which ceased for a day or two and then returned. Seven weeks ago he again had a more severe attack. When apparently better and told to get up the pain returned at once on walking about. Some thickening could be felt in the region of the appendix. The appendix formed part of the wall of an old abscess cavity, retrocæcal, it had a recent catarrh in the upper part and a half-inch concretion in the distal part, its lower pole causing gangrenous ulceration with irregular perforation close to the tip. The concretion was hard and contained a few short hairs. Probably in all these cases the hairs of the stiffer kinds projected beyond the concretions which held them and caused spasmodic attacks of pain as a reflex effect of irritation of the mucous lining of the canal. The lumen of the canal is of such a comparatively small size that the ends of the hairs must have been almost constantly in contact in some part of it.

An Address
ON
THE NATURE AND MANAGEMENT OF HYPERTROPHY OF THE HEART.

Delivered before the Æsculapian Society,

BY ALEXANDER MORISON, M.D. EDIN., F.R.C.P. LOND. & EDIN.,
PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL.

GENTLEMEN,—Muscular textures, whether somatic or visceral, if not exhausted and overthrown by too sudden and violent a call upon their reserve power, slowly but certainly endeavour to adapt themselves to fresh demands upon their energy. While this is a general law, it appears to find expression more emphatically in some individuals or organisms than in others. The nutritive powers in some persons—cellular, hæmic, and neural—are greater than in others, if we may judge from the greater hypertrophic increase of over-exercised organs in them as compared with a similar increase under like circumstances in others. The right arm of every village blacksmith does not attain the same size, although one may forge the same number of horse-shoes, as his neighbour whose muscular development exceeds his own. Some factor in his nutritional power falls short, or he has come into the world with a smaller amount of the hypertrophable material. The quantity of such material is fixed in most organs at birth. This fact has a certain interest as it perhaps helps to explain the more easy attainment and maintenance of compensatory hypertrophy in some patients as compared with others. It was shown by my old teacher, Professor Kölliker of Würzburg, that in organs which do not add *new growth* to hypertrophy there is no increase in the number of the elements in an enlarging organ, but an increase in the size of the individual elements. He proved this by the simple process of counting the fibres and noting their individual increase and his contention has never been disproved, although it has been disputed.

This is the great distinction between the increase in size of the cardiac as compared with the uterine muscle. In the latter organ the muscular texture, dealing with a special office of a temporary if recurrent kind, shows an increase in the number of its elements, and the office once performed the new growth returns as we know by involution, that is, by the degeneration and absorption of the added elements, to its original proportions and, presumably, to the original number of its elements.

With all increased exercise of an organ there is an increased blood-flow towards it, and in the arteries of the gravid uterus this increase is manifested by a notable increase in the size of the blood vessels which, as in the case of the other muscular elements, can only be accounted for by an increase in the number of the muscle cells constituting the muscular coat of the vessels.

It has been thought by some that with this actual increase in the number of the organic and vascular muscular elements there is also an increase in the size of the uterine nerves, but there is reason to doubt the correctness of this conclusion in the main as regards the latter. They certainly look larger and are more succulent or swollen in appearance, but there is not sufficient evidence of an increase in the number of the neural elements. It is a point which I investigated with some care in a series of lectures which I delivered in Edinburgh in 1897 and 1898 on the innervation

of the viscera. In the course of that investigation I made some observations which appeared to me to account for the adequacy of the original nerves to supply the greater area of distribution in the gravid uterus, by the possession of a remarkable degree of coiling or tortuosity by these nerves in the virgin state, which is undone or paid out in great measure in the gravid uterus, and which returns to the original degree of tortuosity after parturition. The mode of ultimate distribution to the muscle elements in the uterus is on the usual lines of triradiate nuclear points, that is, by dichotomous dispersion. It is possible that in this ultimate distribution there may be some additional production of nerve fibres to supply the added muscle cells, which, of course, must degenerate with the disappearance of these added elements, but on this point I cannot speak positively, and know of no positive results obtained by others. The absence of such peripheral production of nerve fibres would, however, argue the exercise of muscular power without innervation, and that is contrary to all probability. There is certainly no apparent increase in the number of nerve fibres in nerve *trunks*.

In the case of the enlarged heart there is apparently no new muscle produced. Its overgrowth is on the lines of its normal increase from childhood to adult life, and while the coronary vessels gape more in the hypertrophied than in the normal heart there is no such increase in their size as in the vessels of the uterus. While the cardiac nerves, moreover, possess tortuosity, this is not so marked as in the uterus, and there is no evidence that there is any actual increase in their size or in the amount of nerve tissue in the hypertrophied as compared with the normal organ. The peculiar system of fibres in the heart known as the tract of His, and which has been so exhaustively studied by Tawara and others, appears, so far as our present knowledge goes, to show neither increase when the rest of the heart is hypertrophied nor degeneration under circumstances in which one would *a priori* expect to find it. Its function is supposed to be solely the conduction of muscular contraction from the auricles to the ventricles, but an adequate knowledge of the functions of this interesting tract is not yet possessed by us.

When the heart, dealing with an obstacle in the normal and easy transmission of blood, hypertrophies in just proportion to the additional work thrown upon it, it is said to be "compensated." That is, the inadequacy of the normal heart to deal with an abnormal obstacle is said to be made good by its additional growth and power. It can easily be understood that such a condition of "compensation" is one of a more or less uncertain state of equilibrium between obstacle and heart power, and this uncertainty is proportionate to the character of the obstacle. Thus, one has met with cases of mitral regurgitation of moderate degree which have not been incompatible with a long and active life. I have, for example, had a patient under my care, well over 70 years of age, whose history established the fact of cardiac valvular lesion at the age of 14 and who had, nevertheless, reached his venerable age as an active warehouseman without accident. On the other hand, an early aortic regurgitant lesion could not be expected to be compensated for so long a period, and peripheral or renal causes of cardiac disablement and hypertrophy would likewise tend within a shorter time to tip the balance of compensation deathwards.

The earlier writers, like Hope, regarded hypertrophy as a disease. Writers of a later period, like Sir James Paget, regarded hypertrophy as invariably conservative and beneficial, and there is a good deal to be said for both views in certain circumstances. It may be admitted that the latter view is, generally speaking, the more correct, but there are certain conditions in which the compensatory hypertrophy oversteps the limits of beneficial increase. This is, no doubt, because the degree of embarrassment in the circulation is of more than average severity. Yet mere bulk of cardiac muscle may, I think there is reason to believe, become an intra-thoracic annoyance, a factor adding to the disablement both of heart and lung. In such circumstances hypertrophy ceases to be advantageous and becomes an aggravated incident by its excessive proportions which, with Hope, I am inclined to regard as a disadvantage and therefore a disease or cause of disease.

We know that there are certain characteristic differences in cardiac hypertrophy as it affects various portions of the heart under the influence of different lesions. Dextral valvular lesions are of rare occurrence, but (as in the left heart) induce hypertrophy which, however, never adds a mechanical factor of increased embarrassment from its *bulk*, even when well marked, as it frequently is, in cases of congenital malformation. Pulmonary obstructive (emphysematous) and constrictive mitral valvular disease may likewise alter the shape of the heart characteristically and induce considerable dextral hypertrophy; but here also the condition must be regarded as altogether beneficial to the propulsion to the circulation. The uncomplicated hypertrophy of mitral regurgitant disease may be placed in the same category, while the gradually diminishing hypertrophy due to peripheral obstacles rarely attains dimensions which can justly cause it to be regarded as a diseased state. The latter may cause subjective discomfort, such as vertigo, or even favour cerebral hæmorrhage and death, but, as a disabling incident in the actual propulsion of the blood, such hypertrophy does not play a part. The organ indeed under these circumstances, however powerful its walls, frequently occupies a comparatively small amount of space. Clinically, the area of cardiac dulness is not usually extended in these cases and post mortem the heart frequently exhibits the condition of so-called concentric hypertrophy, which is merely hypertrophy without dilatation. It is the cor bovinum, the hypermyotic heart, which exemplifies that degree or condition of cardiac hypertrophy which ceases, as I think, to be beneficial in compensation, and becomes from its bulk an added intra-thoracic embarrassment to the circulation of the blood. By cor bovinum is meant a heart hypertropied in a degree beyond the average. Personally, I prefer the term "hypermyosis." The hypermyotic heart is indicative not only of a high nutritional index on the part of the individual manifesting it but also of a high degree of impediment to the normal action of the heart. In so far, therefore, as hypertrophy is proportionate to impediment we must regard even hypermyosis as conservative and beneficial in intention, if not in effect. That it is not beneficial in effect may, I think, be legitimately argued.

This condition of hypermyosis is met with chiefly in two kinds of case—namely, (1) when the aortic valve is incompetent and the organ has to deal with a circulation in which the driving systemic chamber contains blood both during systole and diastole—in which systole is difficult and diastole distensive, from the in-rush of auricular and regurgitation of aortic blood; and (2) when, whatever the valvular lesion, the cardiac muscle itself is tethered directly to the pericardial sac, and through the agency of the latter to the chest wall or to neighbouring organs. In these cases of adherent pericardium likewise systole is rendered difficult and disastole fixed or checked. In both classes excessive impediment provokes excessive effort in many cases and excessive effort induces excessive hypertrophy.

The effect of excessive effort is, naturally, exhaustion, and in the production of this result several factors, hæmic, neural, and muscular, are operative. The blood formation of such patients is disturbed by the passive congestion of the chylopoietic and excretory viscera and the quantity of the circulating fluid has to be carefully regulated on account of the difficulties which beset its circulation. Broken sleep, often in the orthopnœic position, with the general muscular fatigue entailed, involves also a weakening of cardiac force from the neural side, while the essential irritability of the heart muscle itself suffers from these indirect causes and from the additional effort it has to put forth to forward the blood-flow in circumstances of an engorged and disordered coronary circulation. These circumstances alone may in great measure account for the fact that a patient frequently dies at a vigorous period of life and reveals on post-mortem examination a large and powerful heart muscle without manifest degeneration which one would, *a priori*, regard as capable of adapting itself much longer to the additional labour thrown upon it by the mechanical lesions which underlie the cardiac hypermyosis. The lungs, moreover, are not merely respiratory organs. Inspiration and expiration have a definite effect upon the circulation of the blood. This is well seen in the so-called pulsus paradoxus—the regular succession of small and large waves—which occurs when respiratory action is exaggerated in connexion with heart disease. This pulsus paradoxus was, indeed, at one time regarded as diagnostic of adherent pericardium, but we now know that it may occur when the heart is labouring at a disadvantage, quite irrespectively, of such pericardial tethering. When, therefore, we have a large hypermyotic heart, whether tethered or free, by its mere bulk it encroaches upon pulmonary space and hampers the respiratory scope both of lungs and diaphragm when inclosed in an unyielding chest wall.

In the young, in whom the ribs and cartilages are soft in proportion to their youth, we find that as the heart increases in size the chest wall in a measure yields before its increasing bulk and under the influence of its more powerful and heaving muscular action. In these circumstances a so called "bulging" of the præcordia is gradually established. Nor is this bulging only found when the chest wall imprisons a large and powerful heart, but also when pericardial effusion or intrathoracic tumour add distension to the normal contents of the thoracic cavity. As I argued in a paper which I read before this society last year on pericarditis in childhood the heart in these circumstances requires more room to act in, and, as I shall state presently, such room ought in certain circumstances to be provided by the surgeon under the guidance of the physician, and has been so provided with benefit. But the excessive bulk of the heart may be dependent upon conditions transient in their nature and it therefore becomes a matter of the first importance to diagnose aright between hypertrophy and dilatation of the heart when one or other of these conditions plays the major part in any given case.

The hypertrophied heart which comes under medical observation except for some such purpose as life insurance is usually one in which dilatation is present in addition to hypertrophy. When this is not the case the chief distinction from the heart of dilatation rests on its more forcible palpable impulse and the absence of dyspnœic symptoms or symptoms of dyspnœa induced by such exercise as should normally not have this result. The area of cardiac dulness, moreover, is usually most extensive when the heart is dilated, and when this is so in a high degree there may be much intercostal pulsation, with the chief apical point of impulse displaced in various degrees beyond its usual distance from the mid-sternum.

When the evidence of dilatation of the right side of the heart is well marked we also have the signs of venous reflux into, or engorgement of, the cervical veins and usually well-marked epigastric pulsation, with in some cases actual rhythmical pulsation of the liver. The auscultatory signs also help us, for the general signs of cardiac dilatation as distinct from hypertrophy to which I have referred are usually associated with an accentuation, single or reduplicated, of the cardiac second sound as compared with the normal or with the second sound as met with in the well-compensated hypertrophied heart.

The cases in which the differential diagnosis between the hypertrophied heart with a measure of dilatation and the dilated heart in which hypertrophy plays a minor rôle are most difficult. They are, in my experience, cases on the one hand, of adherent pericardium with valvular lesion, and on the other, cases usually of mitral valvular disease without such adhesions. There are those who question the importance of pericardial tethering as a seriously aggravating incident in these cases, but I am not one of that number. I agree with those who consider such adhesions as one of the chief incentives to that hypermyosis to which I have already referred, as taking the hypertrophic increase of the organ beyond the pale of beneficial processes. In both these classes of cases we may have urgent dyspnœa, a wide area of percussion dulness, and frequently a double mitral bruit at the apex anteriorly, becoming single in the paravertebral groove posteriorly. Both may be associated with the paradoxical pulse in proportion to the degree of dyspnœa and amount of expansile lung, and both may show an unaltered situation of the heart on changing the posture of the patient to the right or left, as the case may be. In young subjects we may gain some probability of the existence of the more permanent state of tethered hypertrophy from that bulging in the præcordia to which I have already referred, especially when the underlying lesion is mitral rather than aortic.

When treatment is followed by amelioration we may also legitimately draw a conclusion from the skrinkage of the area of cardiac dulness, which is more manifest in untethered than in tethered cases, and this variation may be corroborated by skiagraphic inspection. When hypertrophy predominates, as it does in many cases of adherent pericardium, a diastolic impulse perceptible to the palpating hand may at times be perceived, and to this sign Hope attached much diagnostic importance, and Brauer has recently emphasised its value. We must, however, in many of these cases rest satisfied with the probable correctness of our diagnosis, for, even with the greatest exercise of care in coming to a conclusion on the point, we know that error is possible. I am myself inclined to attribute most importance in these circumstance to the relative fixity or alteration of the palpable and percussible signs, in periods of relief or improvement, as compared with the conditions found during the acme of disordered action. These considerations interest us at present in view of the remarks I propose making on the *treatment* of the conditions concerned.

Prognosis.—The prognosis of a compensating hypertrophy is influenced by many considerations. In the *child* the nature of the lesion, the general nutrition of the patient, and purely mechanical factors are the guiding data. In these circumstances every additional mechanical impediment gains in prognostic importance and the high degree of hypertrophy associated with many cases of adherent pericardium and the comparative short life of most young subjects early affected with endo-pericarditis lends importance to the pericardial element in the prognosis of the hypertrophied heart of childhood. In the adult, in addition to the muscular and hæmic data, we have the influence of the neural factor, by means of which shock, anxiety, and imperative labour additionally tax the heart already labouring at a disadvantage, while with advancing life peripheral arterial embarrassment and the affection of other organs such as the kidneys furnish considerations which have a bearing on prognosis.

The management and treatment of the hypertrophied heart.—That the disabled heart, sufficiently "compensated" by the hypertrophy provoked by its condition, may efficiently do its work for lengthened periods in circumstances of considerable stress and strain, is a common experience. The importance of the neural factor in the maintenance of an undisturbed cardiac action has also been mentioned. It follows, therefore, that no more injudicious course can be taken with the patient than that of rendering him "nervous" about the condition of his "heart," or so hedging him about with restrictions as to suggest that little lies between him and dissolution. Yet this is the tendency of that nauseating detection of various minor degrees of dilatation which has not been unknown in the practice of medicine within recent years, and which would probably have affected the welfare of patients more had the diagnosis been more frequently correct.

The avoidance of strenuous exertion, especially in aortic cases, is of course desirable, and the care of the patient imperative if intercurrent disease or great emotional distress beset him; but, given a reasonable observation of precautions in such contingencies, the more rapidly the patient forgets he has a "heart" the better for him, and the less illumination as to his condition which the physician affords him the better—certainly for the patient. For the physician who acts thus it may not be so well, for the anxiety of friends may hurry him to some source of physiological enlightenment which may not enhance the reputation of the previous adviser more prudent in the interest of the patient than of his own interest in dealing with a public whose anxiety alone is greater than their ignorance.

The disordered action or insufficient force of the heart already hypertrophied, of course, demand attention by rest of mind and body, regulation of food, the cardiac tonics indicated, whether hæmic, neural, or muscular, or these combined, and later graduated exercises by baths, gymnastics, or walking. But as time advances and hypertrophy increases, giving way later to dilatation, and we have a large ineffective organ pulsating in the thorax and crowding neighbouring organs directly and indirectly, and refusing to be reduced to order even by the bolder therapeutics of bloodletting and heroic doses of the cardiac stimulants, the question arises whether anything else can be done to render cardiac action more easy and to relieve the patient for a longer or shorter period.

We are all aware of the baneful influence upon the circulation of removeable accumulations within the chest, such as serum, pus, air, or blood, accumulations, that is, which by their pressure "crowd" the heart and hamper it in its easy and free movement. Relief may also be obtained when the invading mass is solid. I have now under my care in the Great Northern Central Hospital a girl, 13 years of age, who has a large glandular tumour in the upper portion of the left chest anteriorly, associated with signs of much interest which I shall relate on another occasion. It pressed upon the trachea and bronchus and necessitated the constant maintenance by the patient of the orthopnœic position. As the sufferer was not cachectic I thought it possible that the tumour might be hydatid, though probability pointed to its solid nature. I therefore asked my colleague, Mr. Ewen

Stabb, to explore the chest by costo-chondral resection. About two inches of the second and third left rib-cartilages were resected and the patient, at the time I write, now reclines comfortably, and avers she can both breathe and swallow more easily, and does so.

One might legitimately, therefore, surmise *a priori* that when the central organ takes the initiative in congesting and encroaching upon the lungs, relief of intrathoracic pressure by costal resection might also in some cases be beneficial. This view, if you remember, was that which I put forward in a paper on "Pericarditis in Childhood" which I read before this society last year and which was later published in THE LANCET.[1] It is, indeed, a view which I have advocated for several years, but without convincing others, possibly because I have not boldy put it into practice. The same timidity, however, has not been exhibited in Germany, where Brauer, of whose work I was until recently unaware, has successfully treated several cases of adherent pericardium by causing surgeons to remove a sufficient amount of costo-chondral surface in the præcordia, and his example has been followed in Holland by Wenckebach in one case. I cannot now give the details of these cases, but it will suffice to relate (1) that the operation was not difficult, as one would expect; and (2) that the general effect in improving the action of the heart and in promoting an easier circulation was obtained by the procedure. All these cases were diagnosed as adherent pericardium, although the sac was not opened, and in some of them costo-pericardial adhesion under the surface removed was not found. The pericardial tethering was, therefore, assumed to be elsewhere, that is, pleuro-pericardial. This fact also, however, has interest, for the question arises whether mere cardiac bulk is not a disadvantage in these circumstances and whether, therefore, the justification does not arise for attempting to relieve pressure by the removal of a portion of the ribs and cartilages in the præcordia, in obedience to the indications given by the præcordial bulging of children, even when it may be assumed that actual pericardial tethering is absent. I think personally, we shall soon be justified in this matter in following John Hunter's advice to Jenner when the latter was too timid to vaccinate but thought he might do so with safety. "Why think?" said Hunter; "do it." I believe we shall also in this matter be able to "do it" with safety and with benefit, both to patients and to our own reputation.

PANCREATITIS DUE TO DIRECT EXTENSION OF A MALIGNANT GROWTH OF THE GALL-BLADDER ALONG THE COMMON BILE AND PANCREATIC DUCTS.

BY A. W. MAYO ROBSON, D.SC., F.R.C.S. ENG.,
HONORARY SURGEON TO THE DREADNOUGHT HOSPITAL;
AND
P. J. CAMMIDGE, M.B. LOND., D.P.H. CANTAB.

THE following case appears to us to be of sufficient interest, both from a clinical and pathological point of view, to make it worthy of being reported.

The patient, a man, aged 61 years, was seen by one of us in consultation with Dr. Carter on the evening of March 2nd, 1907. He was extremely ill and it appeared clear to both his medical attendants and his friends that unless something could be done to relieve him he had not long to live. He gave the history that he had been perfectly well up to 13 months previously, when he began to have some abdominal pain on the right side beneath the costal margin. Although he was able to go to business, he had to leave off work from time to time on account of more severe seizures of pain, the attacks resembling, and, in fact, being diagnosed as, gall-stone seizures. From the time of his first attack of pain he began to lose flesh and in November, 1906, after a more severe attack than usual, jaundice supervened, but it cleared up in a fortnight. Three weeks before being seen he had had another severe attack followed by jaundice, which, however, had now subsided. With the jaundice the abdomen became swollen and very tender on the right side. For one week he had had some fever of an irregular type, associated with occasional shivering attacks and vomiting. At the time of the consultation he was markedly emaciated and very feeble, the abdomen was distended, but no fluid thrill could be felt. There was great tenderness on the right side of the abdomen, apparently due to local peritonitis, so that it was impossible accurately to palpate the region; nevertheless, gentle pressure revealed a distinct swelling which reached below the level of the umbilicus. It was hard, distinct, tender, and rounded and was apparently a distended gall-bladder. Above this swelling could be felt a hard nodule at the edge of the liver. The skin was deeply jaundiced, the urine was dark, and the fæces were pale. There was no œdema of the legs and no evidence of ascites could be found. Immediately after the abdomen had been examined the patient had a shivering attack and the temperature went up at once to 104° F. A diagnosis was made of suppuration in the gall-bladder, possibly associated with gall-stones and probably with malignant disease. An exploratory operation was recommended, and, although it was thought that the patient would be too ill to bear any extensive operative procedure, it was hoped that pus might be evacuated and so give relief.

Analyses of specimens of urine, fæces, and stomach contents were made on March 3rd with the following results.

Urine.—Reaction, acid; specific gravity, 1·020; albumin, *nil*; sugar, *nil*; acetone, *nil*; diacetic acid, *nil*; indican, *nil*; bile, a well-marked reaction; urobilin, *nil*; urea, 2·7 per cent.; chlorides, 0·4 per cent.; phosphates, 0·3 per cent.; microscopically, squamous and transitional epithelium; "pancreatic" reaction (C), many fine crystals, soluble in 33 per cent. sulphuric acid in ten seconds (Fig. 1).

Fæces.—Appearance, soft, grey-brown, solid; reaction, alkaline; stercobilin, traces; microscopically, many fat globules, a few fatty acid and soap crystals, some undigested muscle fibre; organic matter, 91·5 per cent. of the dry weight; "total fat," 39·6 per cent.; "neutral fat," 31·8 per cent.; "combined fatty acid," 7·8 per cent.; organic matter, not fat, 51·9 per cent.; inorganic ash, 8·5 per cent.

Stomach contents.—Reaction to litmus, acid; congo-red reaction, deep blue; phloroglucin vanillin reaction, pink; lactic acid, traces; albumin, a well-marked reaction; albumoses and peptone, a well-marked reaction; mucus, a large amount; dextrin, a well-marked reaction; sugar, *nil*; blood, *nil*; bile, *nil*; microscopically, much glairy mucus, many fat globules, some starch granules, many sarcinæ, some yeast cells, a few bacilli. Quantitative examination: total acid, 0·12 per cent.; total chlorides, 0·32 per cent.; inorganic chlorides, 0·22 per cent.; physiologically active hydrochloric acid, 0·10 per cent.

The conclusions drawn from the above results were stated as follows:—

> The large amount of bile pigment in this specimen of urine shows that there is some serious obstruction to the free flow of bile into the intestine. The positive result of the "C-pancreatic" reaction points to there being active degenerative changes in the pancreas, probably of an inflammatory nature, and suggests that the cause of the obstruction to the bile flow is also interfering with the functions of the pancreas. The character of the pancreatic reaction, the presence of traces of stercobilin in the fæces, the normal proportion of physiologically active hydrochloric acid, and the presence of free hydrochloric acid in the vomit are against the obstruction being due to malignant disease of the head of the pancreas and suggest a diagnosis of impacted gall-stones in the common bile-duct. The excess of unabsorbed fat in the fæces, together with the fact that this excess is entirely due to "neutral fat," tends to confirm the diagnosis of there being some interference with the functions of the pancreas. The excess of fat is, however, not so marked as is usually seen in malignant disease of the head of the gland and points to the defective digestion being due to an inflammatory lesion of the pancreas. The results of the analysis of the stomach contents are against a diagnosis of primary malignant disease of the pancreas or stomach, but the microscopical characters and the presence of lactic acid suggest that there is probably some stagnation of the stomach contents.

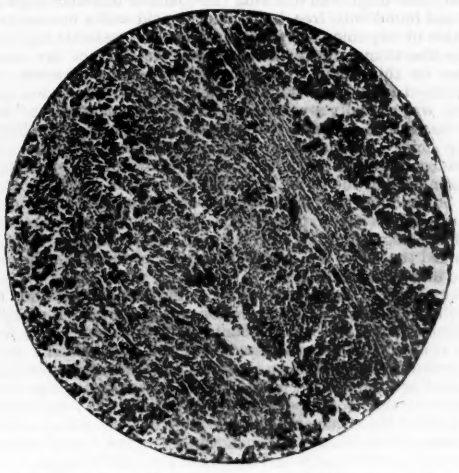
The pathological analyses therefore pointed to there being a considerable degree of pancreatic inflammation associated with, and secondary to, obstruction of the common bile-duct and since the evidence available did not favour this being due to a malignant growth of the head of the pancreas it was inferred that it arose from the most common cause—namely, an impacted biliary calculus in the pancreatic portion of the common bile-duct. The presence of free hydrochloric acid and the normal proportion of physiologically active acid found in the stomach contents also tended, according to the investigation of Moore and his fellow-workers, to contraindicate a diagnosis of cancer elsewhere and favoured the opinion that the

[1] THE LANCET, July 28th, 1906, p. 209.

FIG. 1.

Crystals obtained from the urine by the "c-pancreatic reaction." (× 200.)

FIG. 2.

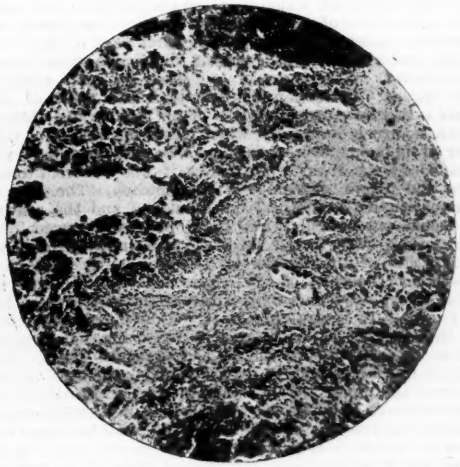


Section of the primary growth in the gall-bladder. (× 50.)

FIG. 3.

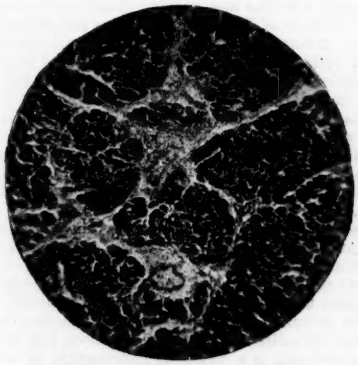
Section of the wall of the common bile-duct (below) and contents (above). (× 50.)

FIG. 4.



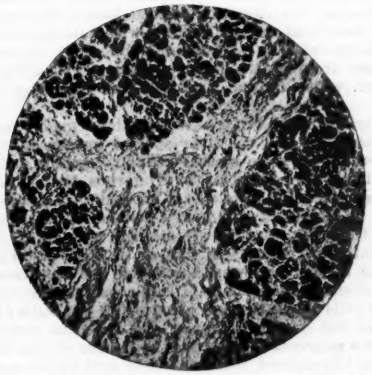
Section of the duct of Wirsung and adjoining tissue, showing the contents of the former and the penetration of the wall by the growth. (× 50.)

FIG. 5.



Section of the head of the pancreas midway between the duct of Wirsung and the periphery, showing interstitial pancreatitis and deposits of growth. (× 50.)

FIG. 6.



Section of the head of the pancreas near the periphery, showing advanced interstitial pancreatitis but no deposits of growth. (× 50.)

obstruction was of a simple nature, but as in two other cases of growth blocking the common bile-duct high up we had found both free hydrochloric acid and a normal proportion of physiologically active acid in the material regained from the stomach after a test meal we did not lay much stress on this point. In both of these cases, however, we had failed to find any trace of stercobilin in the fæces, and there was not only a very large excess of "neutral fat" but the fæces also contained a high proportion of "combined fatty acid," so that the presence of stercobilin in this instance, together with the other results of the chemical examination of the fæces, inclined us to take the view that the obstruction was probably due to gall-stones. The only point not readily explained on this hypothesis was the evident stagnation of the stomach contents, but it was assumed that this was due to dilatation of the stomach from some independent cause.

The patient was removed to a nursing home, and on March 4th an exploratory operation was performed, a vertical incision being made over the centre of the tumour. Pus was soon reached and it was found that the abscess walls were composed of broken-down growth. A drainage-tube was inserted and the wound was closed as it was quite clear that nothing further could be done. The patient was temporarily relieved by the evacuation of the pus, but his pulse, which was very feeble before the operation, in a few hours became very rapid, and he only survived until the following day.

A partial post-mortem examination was made 18 hours after death, permission only being given for an examination to be made through the operation wound. The drainage-tube was found to lead into an irregular cavity, lined with soft friable material, which occupied the position of the gall-bladder, no trace of which could be found. The growth was intimately adherent to the pylorus, first part of the duodenum, and colon, so the stomach, duodenum, colon, liver, and pancreas were removed *en masse* for more detailed investigation. Dissection showed that the walls of the cavity varied from three-quarters of an inch to one inch in thickness, except anteriorly, where they consisted of a thin layer of inflammatory exudate. Above and behind it was bounded by the liver, while below it was adherent to the colon and pyloric extremity of the stomach. The line of demarcation between the liver substance and the growth was somewhat irregular but could be easily traced. No metastatic growths could be discovered in the liver. An examination of the interior of the stomach and intestine showed that the walls of the pyloric canal and the first two inches of the duodenum were adherent to, and invaded by, the growth. In several places fungating masses protruded into the lumen of the stomach and duodenum, but no penetration of the walls of the colon had taken place. The common bile-duct could be traced through the head of the pancreas and along the left margin of the growth to its upper extremity, where it was lost as a distinct canal, although the presence of bile-stained material indicated the direction in which it passed. The duct was found to be dilated and filled with soft, bile-stained material throughout its length. The head of the pancreas did not appear to be invaded by the growth and could be easily and cleanly separated from it. The pancreas, and especially the head of the gland, was larger and harder than normal. On section no evidence of any secondary deposits could be detected by the naked eye. On dissecting out the duct of Wirsung it was found to be dilated and to be filled with bile-stained débris, similar to that seen in the common bile-duct, for one and a half inches from its duodenal opening; beyond that it was filled with white opaque material free from any trace of bile.

Histological examination.—Preparations made from the walls of the cavity in the liver showed masses of columnar cells, arranged in more or less regular columns and alveoli separated by delicate strands of fibrous tissue (Fig. 2) Sections of the common bile-duct showed that its lumen was occupied by masses of columnar cells and amorphous débris. Many of the cells were deeply stained with bile. In some places continuous strands of five or six cells could be seen. The walls of the duct were thickened and infiltrated with patches of small round cells. In places irregular masses of columnar cells could be seen penetrating the walls (Fig. 3). Sections of the duct of Wirsung and adjacent tissue in the head of the pancreas showed that the lumen of the duct was filled with bile-stained columnar cells and débris similar to that found in the common bile-duct. The walls of the duct were irregular and much thickened. Patches of columnar cells were found in the fibrous tissue of the walls and lying in the fibrous strands separating the neighbouring pancreatic lobules (Fig. 4). Preparations made from the head of the pancreas in various situations showed well-marked interstitial pancreatitis of the interlobular type, the lobules being separated by wide strands of fibrous tissue, which in places invaded the periphery of the lobules. Scattered in the interlobular tissue were small irregular patches of columnar cells, some of which occurred as solid masses, while others were grouped about a more or less distinct lumen. The latter, however, could be readily distinguished from the normal interlobular ducts by the atypical arrangement of the cells and the absence of any limiting membrane or duct wall. No direct invasion of the head of the pancreas by the growth appeared to have occurred and the patches of growth were most numerous in the neighbourhood of the duct of Wirsung (Figs. 5 and 6). Sections of the body and tail of the pancreas showed no marked overgrowth of interstitial tissue but the cells of the parenchyma were swollen and granular, having the histological characters seen in cloudy swelling.

The post-mortem examination thus proved that the cavity opened at operation was due to a columnar-celled carcinoma of the gall-bladder which had invaded the stomach and first part of the duodenum and was adherent to the colon. The obstruction of the pylorus caused by the growth accounted for the vomiting that occurred during life, and also explained the evidences of stagnation of the stomach contents found in the pathological examination. The destruction of the upper part of the common bile-duct, and the presence of a mass of disintegrated growth in its remaining section, were undoubtedly the cause of the jaundice, but the bile-stained character of the cells in the lumen of the duct and the presence of stercobilin in the fæces showed that some bile was able to find its way along the duct into the intestine, the obstruction thus not being absolute as it is in most cases of primary cancer of the head of the pancreas.

The most interesting feature of the case is the condition of the pancreas and the duct of Wirsung. The latter was filled with débris similar to that found in the common bile-duct, and as the part of the pancreatic duct nearest to this was stained with bile it was evident that not only had masses of cells passed from the common duct into the duct of Wirsung but that a certain amount of bile had also followed the same course. According to Opie the passage of bile into the pancreatic duct is a cause of acute pancreatitis, and although there were well-marked evidences of inflammatory changes these were not of the acute type, and during life there had been none of the symptoms usually associated with acute pancreatitis. Recent experiments by Flexner have tended to show that the active constituent of bile giving rise to inflammation of the pancreas is the bile salts, and that when these are modified by prolonged stay in the ducts or diluted with colloid material they cause chronic inflammation and not an acute fulminating lesion. This is probably, in part, the explanation of the pancreatitis found in the case under consideration. But in addition we have also to take into account the obstruction to the free outflow of the pancreatic secretion caused by the blocking of the ducts and the irritation of the gland by deposits of growth within its substance. The much more advanced stage of the lesion found in the head of the gland is possibly to be explained by its earlier invasion by the growth and its more direct contact with the bile passing from the common bile-duct into the duct of Wirsung, but it has also to be borne in mind that malignant disease of the gall-bladder very frequently follows irritation by gall-stones and that chronic pancreatitis is also most commonly the result of the passage of biliary calculi along the common duct. The fact that there was advanced fibrosis of the head, while the body and tail only showed the characters of catarrhal pancreatitis, with no marked increase of fibrous tissue, lends support to the view that the affection of the head of the gland was of much earlier date than the disease of the body and tail of the organ.

The absence of any direct connexion, either macroscopically or microscopically, of the growth with the pancreas, the more numerous deposits of growth in the neighbourhood of the duct of Wirsung, and the absence of deposits elsewhere suggest that the involvement of the pancreas was by way of the common bile and pancreatic ducts. So far as we are aware this direct method of extension has not as yet been described and is a cause of pancreatitis of which we have no previous knowledge. It was no doubt rendered possible by the soft friable character of the growth, but as

cancer of the bile-ducts may be of a similar nature the possibility of such an occurrence has to be borne in mind in making a diagnosis of pancreatitis.

The examination of the urine, fæces, and stomach contents in this case suggested obstruction of the common duct with secondary chronic pancreatitis, and the histological examination afforded abundant evidence of the correctness of these conclusions, thus once again demonstrating the usefulness of these methods when carefully and correctly carried out. The inference as to the simple nature of the cause of the obstruction was, however, proved to be incorrect, but the condition was so anomalous and outside our previous experience that a correct conclusion was practically impossible.

An examination of the stomach contents for free and physiologically active hydrochloric acid has proved of assistance in two cases of malignant disease of the head of the pancreas, but in this instance the results of this examination were misleading, as they had been in the cases of growth of the common duct previously mentioned. We are therefore of opinion that while the absence of free and physiologically active hydrochloric acid may afford useful confirmatory evidence in suspected cases of cancer of the head of the pancreas, their presence, even in considerable amount, is not of any diagnostic value, especially when the growth is situated in the common duct or gall-bladder.

The case is clinically interesting as showing how closely cancer of the gall-bladder may simulate cholelithiasis, if the disease be associated with suppuration. The intermittency and severity of the attacks of pain for 13 months, without jaundice, suggested the presence of gall-stones in the cystic duct, and the last severe seizure, followed by jaundice, made it appear probable that a calculus had passed into the common duct. Although no gall-stones were actually found, either at the operation or later, it is quite possible that cholelithiasis may have been the original cause of the disease, and this is rendered probable by the presence of more advanced inflammatory changes in the head of the pancreas than could be accounted for by the recent invasion of the gland by malignant disease from the duct of Wirsung. The nodular character of the growth felt before operation and the reported loss of flesh and strength led to a suspicion of cancer, but the well-marked signs of suppuration gave the impression that some relief, and possibly something more than relief, might be given by the evacuation of the abscess.

On several occasions it has been the good fortune of one of us to operate under similar circumstances and to find the disease to be simple, the operation leading to complete and perfect recovery, but in this case it became at once apparent on opening the abdomen that merely temporary relief was all that could be hoped for.

Our experience in other cases of cancer of the pancreas has shown that an inflammatory condition is apt to supervene as a complication in a certain proportion of cases, and unless this is borne in mind it may lead to errors in diagnosis and to useless operation, for it must be acknowledged by all who have had experience of such cases that primary cancer of the pancreas is a hopeless disease however it may be treated.

CALCULI IN THE APPENDIX.[1]

BY D. T. BARRY, M.D. R.U.I., F.R.C.S. ENG., D.P.H.,
DEMONSTRATOR OF PHYSIOLOGY IN QUEEN'S COLLEGE, CORK.

BEING at present engaged with Professor J. J. Charles in a little research work on the structure of the appendix my attention was directed to the subject of calculi and other bodies found in this organ by finding four small stones in one of the specimens submitted to me by Dr. D. P. Fitzgerald, our assiduous demonstrator of anatomy.

There seems to be no definite understanding as to the exact nature of these bodies, but that they are not always of the same kind is certain. Before attempting a classification I will give the results of a rough analysis of those specimens and a few extracts from recent literature on the subject. The appendix in this case was somewhat fusiform in shape, having a bulging middle and contracted ends. Microscopically the distal end for quite half an inch from the tip presented no lumen and no trace of glands or of lymphoid tissue. Between this and the distended site of the calculi a portion intervened containing a plug of mucus in the lumen, a fairly regular set of glands, and showing some inflammatory changes. The distended portion showed atrophy of the mucous membrane and thinning of the muscular coat. The proximal end contained a plug of mucus. The calculi were four in number, each about two millimetres in diameter, dark brown in colour, smooth, and facetted. Allowed to fall on a plate they gave a ringing sound in no way differing from that given by a small gravel pebble of the same size. While engaged in this latter pastime I lost one of the precious stones.

The next step in the examination was to macerate one with a dilute solution of sulphuric acid and to test the surface layer microscopically and chemically for cholesterin. These tests were negative. Gmelin's test for bile pigments and Pettenkofer's test for bile salts also gave negative results. Further examination showed that the stones were composed chiefly of calcium phosphate with a small amount of organic matter.

To quote briefly from a few recent investigators:—

Howard Kelly[2] states: "Gall-stones, also, which formerly were supposed to enter the appendix frequently are exceedingly rare; but they are often so closely simulated by enteroliths that a chemical analysis is necessary for their exclusion. The clinical evidence in some of these cases so strongly supports the gall-stone theory as to leave no doubt in the mind of the observer." McAdam Eccles[3] maintains that calculi in the appendix are always enteroliths and always formed *in situ*. Walsham and Spencer[4] state: "The appendix may contain true fæcal concretions or coprolites. Enteroliths proper where the fæcal constituents and inspissated mucus are mixed with calcareous material derived from the inflamed wall, like tonsillar concretions and rhinoliths, are more rare, while foreign bodies, such as fruit-stones, &c., are still rarer." Roberts[5] remarks: "They [gall-stones] cause trouble by lodging in the vermiform appendix.' Lediard of the Cumberland Infirmary recently writing in THE LANCET describes a case on which he operated. The patient showed the usual signs of an acute appendicitis and there was no previous history of gall-stones or a symptom pointing to them. In the appendix were found 11 small black stones, and they were found to consist of cholesterin and bile pigments. Murchison[6] expresses strong doubt of the presence of gall-stones. Osler,[7] in reference to gall-stones in the intestine, remarks: "Courvoisier's statistics give a total of 131 cases, in six of which the calculi had a peculiar situation as in a diverticulum or the appendix." He also states: "The lumen of the appendix may contain a mould of fæces. Concretions, enteroliths, coproliths are also common."[8]

It is only by numerous analyses with careful reports of the separate cases met with that we can allay the uncertainty prevailing in connexion with this subject. It is important to arrive at some conclusion as to the different types of bodies found with the relative frequency of each. It will be seen from the above quotations that there is a confusion of terms. One concludes, for instance, that concretions, fæcal moulds, enteroliths, and coproliths are all distinct things, while in addition the terms stercolith and coprolite are used. Would it not be well to use the term fæcal mould for those masses of inspissated fæces somewhat resembling a date-stone in appearance and containing the usual percentage of inorganic matter found in fæces? The term "enterolith" might well be employed for other forms where the inorganic material preponderates.

To my mind, a very important consideration in these cases is the condition of the appendix itself. If gall-stones migrate from main gut to appendix we should expect to find, according to the size and number of the stones, a patent lumen with more or less destruction of the mucous membrane over which the stone has passed. The case reported by Lediard,[9] where 11 gall-stones seem to have thus migrated one after the other, must surely have presented some interesting features in structure to which no reference is made. The case here reported by me showed changes exactly corresponding to formation *in situ* and to formation as a result of increased inorganic matter accompanying inflammation.

In conclusion, I would express an opinion that, excluding

[1] A note read before the Cork Medical and Surgical Society on March 20th, 1907.

[2] The Vermiform Appendix and its Diseases (Saunders).
[3] THE LANCET, March 14th, 1903, p. 703.
[4] Theory and Practice of Surgery, 1906.
[5] Theory and Practice of Medicine, 1905.
[6] Clinical Lectures on Diseases of the Liver.
[7] The Principles and Practice of Medicine, p. 568.
[8] Op. cit., p. 519.
[9] THE LANCET, Jan. 12th, 1907, p. 83.

parasites which have been found on a few occasions, bodies in the lumen of the appendix may be classified under the following heads, which I give in the order of frequency of their occurrence: (1) fæcal moulds as defined above; (2) enteroliths with or without a foreign body as a nucleus; (3) gall-stones; and (4) true foreign bodies.

Cork.

A CASE OF APPENDICITIS EXCITED BY A CLOVE, THE APPENDIX BEING THE SOLE VISCUS IN A HERNIAL SAC.

BY W. HAL BARNETT, M.B., B.S. LOND.,
AND
J. W. SCOTT MACFIE, B.A., B.SC., M.B., B.CH. EDIN.,
HOUSE SURGEONS TO THE RADCLIFFE INFIRMARY AND COUNTY HOSPITAL, OXFORD.

THE patient who is the subject of this note was a man 58 years of age, who was admitted to the Radcliffe Infirmary and County Hospital on May 5th, 1907, complaining of a tense and painful swelling in his right groin. The history of the case was as follows. For quite 20 years the patient had suffered from a rupture in the right inguinal region, which he controlled by the use of a truss during the daytime. He was never inconvenienced by this and when, as occasionally happened, the bowel came down he was easily able to return it. One morning, however, about a week before his admission, he awoke to find that a swelling had come down, which, unlike his usual rupture, was hard and painful. He thought, however, that it must be the rupture and tried to reduce it as usual. This he was unable to do, but he nevertheless applied his truss on top of it and went about his daily work. At first the swelling, though painful, did not cause him any considerable inconvenience, but after a day or two he noticed that it was rapidly growing larger and at the same time the aching pain "as though something were gripping him hard" became so severe that he was unable to get about at all. On the next night (May 4th) he called in a medical man who, after attempting reduction without success, advised the patient to come to the Radcliffe Infirmary as soon as possible.

On admission the patient appeared to be somewhat anæmic. He was a man of a rather unhealthy appearance. His tongue was dry and clean and it was noticed that the lower parts of his abdomen and his thighs were deeply pigmented. Vomiting had not occurred and his bowels had been moved regularly throughout his illness. His temperature was 99° F. On inspecting the right inguinal region a considerable amount of swelling was observed running down into the scrotum, the skin overlying it was healthy, and no visible impulse was detected on coughing. On palpating the tumour it was found to be very hard, elongated and oval in shape, and about three inches by one inch in size. Its surface was smooth and the mass could be traced from the internal ring down the canal as far as the testicle. It was exquisitely tender to the touch. Percussion only showed that the swelling produced a dull note and nothing could be made out by rectal examination. On May 6th Mr. R. H. A. Whitelocke exposed the tumour by an incision made over the swelling. A small quantity of clear straw-coloured fluid exuded on pricking the sac, and on further opening the mass a rough-walled cavity was laid bare containing a dark red elongated mass. Some purulent material was found, and on lifting up the red mass a clove was discovered lying beneath it. It was then realised that the tumour consisted of a short but very greatly thickened appendix lying in a hernial sac, and accordingly it was removed and the stump cauterised with pure carbolic acid and buried. No other viscus was found to be present in the sac.

It is curious and interesting to note that the patient affirmed that he had not tasted cloves in his food for some time, the last occasion being about a month before his admission, when he remembered having cloves in an apple pudding. Nevertheless, the clove, when removed, was found to be well preserved, the antiseptic action of its essential oils having probably protected it from decomposition. It was in every respect complete, with the exception of one division of the calyx, which was knocked off during the operation, and a little soft and swollen as might have been expected.

We have to express our thanks to Mr. Whitelocke for permission to publish the notes of this case, which appears to be of interest, first, because of the difficulty of diagnosis, for the tumour felt almost like a malignant mass, and yet it had come down so suddenly; secondly, because of the unusual cause—a clove; and thirdly, in that the appendix, greatly thickened and inflamed, was the sole viscus in the sac.

A RECORD OF THE PHYSICAL EXAMINATION OF 1000 BOYS AT THEIR ENTRANCE ON PUBLIC SCHOOL LIFE.[1]

BY CLEMENT DUKES, M.D., B.S. LOND., F.R.C.P. LOND., J.P.,
PHYSICIAN TO RUGBY SCHOOL.

BY the courtesy of the headmaster of Rugby School I am permitted to submit to the International Congress of School Hygiene the results of the physical examination of 1000 boys on admission to a public school between the ages of 13 and 15 years. These British boys may be regarded as a special class: strong and healthy, well-bred, well-fed, and reared mainly in the country. For even where in some instances their infancy and childhood were passed in towns and cities, the period of life from the age of 9 to 13 years was usually spent in the country at admirable preparatory schools. The record is entirely free from selection. The examinations were made as the boys severally entered the school and were solely intended to serve as a basis for regulating each boy's physical welfare during his secondary school life by detailing minutely his exact physical state and thereby affording a sure guide to the masters in the appropriate course of education, and for determining the physical exercise and games suitable to each boy's constitution and vigour.

Prior to registering the result of the examinations I drew up a schedule for recording the proposed analysis of my observations and submitted it to the Editor of THE LANCET with a request that he would refer the form to experts for suggestions tending to its completeness for its purpose. He replied:—"I have submitted your Physical Examination Chart to the author of the leading article in THE LANCET and to one other gentleman taking particular interest in anthropometry. Neither has any suggestion to make. They consider the chart to cover the ground entirely." I insert a copy of the scheme:—

N = Normal. *Private and Confidential.*

PHYSICAL EXAMINATION.

I.—NAME ..... RESIDENCE			Date.
II.—AGE.	Height. Average ..... Inches.	Weight. Average..... lb.	Chest Measurement. Average..... Inches.
III.—GENERAL APPEARANCE.	1. Aspect		Colour of eyes.
	2. Physique		Violet.
	3. Nutrition		Grey.
	4. Deformity.	*a.* Lateral curvature of spine...	Blue grey.
			Blue.
		b. Pigeon breast ...	Green.
		c. Bow legs	Hazel. Brown.
			Brown black.
		d. Knock knees ...	
		e. Flat feet	

Colour of hair.
Albino.
Very fair.
Fair.
Light brown.
Brown.
Dark brown.
Black brown.
Black.
Red brown.
Dark red.
Red.
Golden.
Light red

[1] A paper read before the Second International Congress of School Hygiene, held at the University of London, August 5th–10th, 1907.

IV.—NERVOUS SYSTEM.
1. Intellectual standard: Form.....Previous school...
2. Nervous peculiarity .....
3. Hearing { Normal..... / Imperfect..... { Eustachian ..... / Aural..... / Discharge from ear .....
4. Sight ... { Normal..... / Hypermetropia..... / Myopia..... / Astigmatism ..... / Colour blind .....

V.—DIGESTIVE SYSTEM.
1. Teeth { Good, and well-cared for ..... / Require dentist's attention next vacation
2. Tongue .....
3. Action of bowels { Regular, after breakfast..... / Irregular .....

VI.—RESPIRATORY SYSTEM.
1. Respiratory { Number ..... / Nasal..... / Oral .....
2. Throat ..... { Tonsils ..... / Post-nasal growths
3. Lungs ..... { Percussion ..... / Auscultation .....

VII.—CIRCULATORY SYSTEM.
1. Heart .....
2. Blood-vessels { Arteries ..... Pulse..... / Veins.....
3. Chilblains .....

VIII.—GENITO-URINARY SYSTEM.
1. Puberty ..... { Attained ..... / Not attained .....
2. Genital organs { Phimosis ..... / Paraphimosis... Testes { Descended..... / Undescended.
3. Rupture .....
4. Varicocele .....
5. Character of urine ..... { Specific gravity. / Albuminuria..... / Sugar .....
6. Incontinence .....

IX.—PREVIOUS IMPORTANT ILLNESSES.

X.—IMPORTANT ILLNESSES AT SCHOOL.

Signed.....
Medical officer.

SCHOOL GAMES.

Adapted to .....

O Not to play. X May play. XX Ought to be made to play.
XXX No restrictions.

Cricket	
Football	
Rowing	
*House runs	Little side
	Junior
Athletics	
Gymnasium	
Physical drill	
Skipping on toes	
Cycling	
Swimming	
Skating	
Rackets	
Fives	
Tennis	
La Crosse	
Hockey	
Baseball	
Golf	
Wrestling	
Fencing	
Boxing	
Rifle corps drill	
„ shooting	
Camping out	
Workshops	
Gardening	
Walking exercise only	
Natural history excursions	

Signed .....
Medical Officer.

*No physician can certify that the boy *can* run, although he may sometimes be able to say that he *cannot*.

As soon as it is clear to the captain in charge that the boy *can* run well, the sooner he is promoted to the next longer run the better for his welfare in every respect.

N.B.—Appropriate space is required to insert the details of the examination.

The record commenced on Jan. 21st, 1899, and was completed on May 6th, 1907. I have begun to tabulate a second thousand entries, which I hope will be similarly concluded by other hands than mine.

Height, Weight, and Chest Measurements.

It would be of considerable interest were I able to record the *annual* rate of growth in height, weight, and chest measurements, inasmuch as boys vary greatly in this respect, for some grow slowly before puberty, but make up for this defect at the age of puberty, or even postpone this increase until the ages of 17 or 18, when they grow enormously. In fact, many boys who develop very gradually at first, both mentally and bodily, outstrip their schoolfellows in both respects towards the end of school-life—some growing in height at the expense of weight, and *vice versâ*.

The tables which I have used are those of Mr. Charles Roberts, who is the only author who has recorded, amongst others, the height and weight of public school boys. His table is here appended:—

Table showing the Average and Mean Height and Weight and the Annual Rate of Increase of 7709 Boys and Men, between the Ages of 10 and 30 Years, of the Most Favoured Classes of the English Population—Public-school Boys, Naval and Military Cadets, Medical and University Students.

Age last birthday.	Height without shoes.				Weight, including clothes of 9 lb.			
	Average.	Growth.	Mean.	Growth.	Average.	Growth.	Mean.	Growth.
	Inches.	Inches.	Inches.	Inches.	lb.	lb.	lb.	lb.
10	53·40	—	53·00	—	67·4	—	67·0	—
11	54·91	1·51	54·50	1·50	72·9	5·50	73·0	6·0
12	56·97	2·06	56·50	2·00	80·3	7·39	80·0	7·0
13	58·79	1·82	58·50	2·00	88·6	8·27	88·0	8·0
14	61·11	2·32	61·00	2·50	99·2	10·61	98·0	10·0
15	63·47	2·36	63·50	2·50	110·4	11·21	110·0	12·0
16	66·40	2·93	66·50	3·00	128·3	17·92	126·0	16·0
17	67·84	1·46	68·00	1·50	141·0	12·69	140·0	14·0
18	68·29	0·43	68·50	0·50	146·0	4·97	146·0	6·0
19	68·72	0·43	68·75	0·25	148·3	2·20	148·0	2·0
20	69·13	0·41	69·00	0·25	152·0	3·87	150·0	2·0
21	69·16	0·03	—	—	152·3	0·27	152·0	2·0
22	68·93	—	—	—	154·7	2·44	—	—
23	68·53	—	—	—	151·7	—	—	—
24	68·95	—	—	—	149·2	—	—	—
25–30	69·06	—	69·00	—	155·2	0·42	154·0	2·0

The record of the height, weight, and girth is of inestimable value to the master who, possessing this chart, on which are also prescribed the suitable physical training and games for every "new boy" admitted, is thus intelligently and efficiently enabled to provide for his appropriate individual rearing during the period of education. At some future date these registers of height, weight, and girth should be subjected to minute analysis and classification, for they contain indiscriminately the cases of boys of excessive height with defective weight and of diminished growth with abnormal weight. This necessary analysis, however, must be undertaken by others who have more leisure at their disposal than I can command, as well as greater ingenuity in the handling of figures. The circumference of the chest, measured on the bare skin at the nipple-line, expresses the capacity of the lungs on deep inspiration and expiration. This respiratory capacity has a wide range, varying from one inch to five inches.

In specifying the numbers throughout this paper it must be recollected for the purpose of avoiding continuous repetition that they are all in relation to the standard of 1000.

Height	Above normal	522
	Average	113
	Below normal	365
Weight	Above normal	472
	Average	57
	Below normal	471
Chest measurement	Above normal	445
	Average	132
	Below normal	423

Deformities.

It is necessary to state *in limine* that in no instance were slight defects registered, but only such as were of sufficient practical importance to the sufferer to need special attention

at the hands of the drill-sergeant or the gymnasium instructor.

It is somewhat depressing to register in the twentieth century the large number of acquired preventable deformities (not momentous, it is true, but still indicative of inferior systems of nurture and education) which are presented by the most favoured class of boys in Great Britain—deformities occurring between the time of nursery-life and the completion of education in the preparatory school at the age of 13. Some of these infirmities arise from faults in nutrition during infancy, which entail rickets. And these defects in nutrition, as a cause, tend at the present day to involve the children of the rich even more than those of the poor in their sequent physical evils. For a preponderating proportion of mothers in the higher social rank either cannot, or will not, nurse their children; and more than this, substitute for the naturally-appointed breast-milk, boiled cows' milk, which, in the process of boiling, is deprived of some element in its nutritive value which tends to the advent of rickets or infantile scurvy. Also resort is made to various artificial foods, equally insufficient for the adequate nourishment of infants in their earliest months of life. On the other hand, some of these deformities may result from the debilitating effects of infantile maladies, while the remainder are incidental to unnatural school methods and the disfiguring effect produced by faulty postures, permitted or practically compelled during school-life, so that the supple bones become moulded imperceptibly, but surely, into abnormal forms.

Congenital deformities	Malformation of the ear	2
	Malformation of the little toe	1
	Hammer toes	5
	Undescended testicles	9
Acquired deformities	Antero-posterior curvature of spine	1
	Lateral curvature of spine	445
	Pigeon-breast	126
	Bow legs	64
	Knock-knees	526
	Flat feet	329

Nervous Peculiarities.

Stammering	70
Lisping	3
Nervous twitching	8

Defective Hearing.

Eustachian deafness	13
Aural deafness	19
Aural discharge	2

Defective Sight.

Hypermetropia	40
Myopia	128
Astigmatism (considerable)	27
Colour blindness	12
Congenital cataract	1

Teeth.

In several instances no decayed tooth was to be observed. In the large proportion of cases the teeth, where decayed, had been carefully attended to by the dentist.

Teeth	Well-cared for	943
	Neglected	57

Respiration.

In the large proportion of observations the respiration was nasal and in many of these instances operations had already been performed for post-nasal growths. The respiration, where oral, was generally attributable to a very short upper lip, which prevented the mouth from being closed, or to the presence of adenoids.

Respiration	Nasal	888
	Oral	112

Heart Disease.

Heart disease	Mitral	8
	Aortic	1
	Irregular action of heart	1

Chilblains.

These vary greatly, some being of a trivial character, while others entail much suffering when they reach the stage of "broken chilblains." The chief sufferers are those of a florid complexion, which usually signifies atony of the vaso-motor system, and a still larger proportion suffer from the albuminuria of adolescents.

Sufferers from chilblains		437

Hernia.

Hernia	Inguinal congenital	7
	Umbilical	1

Varicocele.

Varicocele	Right	4
	Left	92

Urinary System.

The number of instances of albuminuria is somewhat startling to those who have not devoted special attention to the subject at early ages; but this functional disturbance is not of serious importance. Amongst those who were known to have this ailment during school life I have never once found the condition existent when they had arrived at maturity. While the malady is largely dependent upon the state of the vaso-motor system, it is also subject to some condition of the blood, inasmuch as Sir A. E. Wright has shown incontestably that it is at once removed by supplying the blood with lime salts either in the form of an abundance of milk (which contains a large amount of lime) or by the administration of lactate of lime. In the interests of the growth, development, and happiness of boys at school, therefore, I would once again urge the importance of not placing lads exhibiting this condition upon a restricted diet and, as is so frequently and needlessly done, prohibiting games within reason, since experience has proved that these regulations are not consistent with their welfare.

Incontinence of urine	Diurnal	2
	Nocturnal	26
Albuminuria		157
Sugar (a trace)		3

Puberty.

Occasionally a boy has entered school as young as the age of 12·75, and once a boy came as late as 16·75; but in all other cases the age of entrance was between 13 and 15 years. Between these years 317 had already attained the stage of puberty; while, however, many have reached puberty at 13, its advent in a few cases has been deferred until after the age of 15.

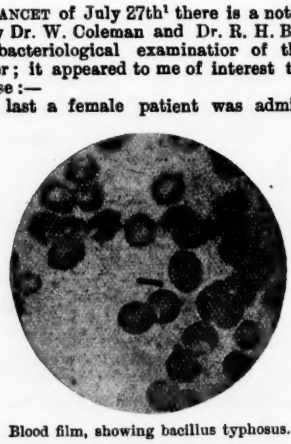
Rugby.

A CASE OF TYPHOID FEVER: A NOTE ON THE BACTERIOLOGICAL EXAMINATION OF THE BLOOD.

BY WINIFRED MUIRHEAD, L.R.C.P., L.R.C.S. EDIN.,
ASSISTANT MEDICAL OFFICER, STIRLING DISTRICT ASYLUM, LARBERT, N.B.

IN THE LANCET of July 27th[1] there is a note on a paper published by Dr. W. Coleman and Dr. R. H. Buxton on the subject of bacteriological examination of the blood in typhoid fever; it appeared to me of interest to record the following case:—

In March last a female patient was admitted to the asylum suffering from acute delirious insanity with a history of illness ten days in duration. Her mental condition was one of great excitement and confusion, with hallucinations of sight and hearing. Physically the patient was found to have an enlarged and palpable spleen, discrete



Blood film, showing bacillus typhosus.

[1] THE LANCET, July 27th, 1907, p. 242.

raised pink spots scattered over the trunk, and tenderness was present in the right iliac fossa. Within 24 hours of admission, the arm being sterilised as for operation, ten cubic centimetres of blood were withdrawn from the median basilic vein and immediately inoculated into three 100 cubic centimetre flasks of broth in as equal quantities as possible, then incubated at 37° C. for 24 hours. A pure growth of a motile bacillus was obtained in each flask, which, when subcultured on agar streak and plates, appeared to be a typical growth of bacillus typhosus abdominalis and was verified by further inoculation. At the same time blood for a Widal reaction was sent into Edinburgh, the report being positive. A point of interest is that one of the blood smears made from the ear that day and stained with Jenner showed a few scattered bacilli in all five fields, usually two bacilli together, varying in size, and individual bacilli staining feebly. Although many more smears were made on subsequent days I was not again fortunate enough to find bacilli, which probably were present. The white blood corpuscles never rose above 8000, the differential count showing a slight increase of the polynuclear leucocytes. The fever ran a normal but very severe course and the patient made an uninterrupted physical and mental recovery.

I use the same methods for bacteriological examination of the blood in all acute insanities and on three occasions I have found bacilli in the smears from the peripheral blood of general paralytics during a congestive seizure.

I am indebted to Dr. George M. Robertson, superintendent, for permission to publish this case and to Dr. C. H. G. Gostwyck, medical officer, for clinical notes.

Larbert.

Reviews and Notices of Books.

A Text-book of Diseases of Women. By CHARLES B. PENROSE, M.D., Ph.D., formerly Professor of Gynæcology in the University of Pennsylvania. With 225 illustrations. Fifth edition, revised. London and Philadelphia: W. B. Saunders Company. 1907. Pp. 550. Price 16*s.* net.

Professor Penrose has written this work for the student. He has therefore in most instances recommended only one plan of treatment and has omitted all facts of anatomy, physiology, and pathology which can be found in the general text-books on these subjects. The result is that he has been able to present all the essential facts of gynæcology within a comparatively small compass. The book is arranged on an anatomical basis, the diseases of the different regions of the generative organs being considered in order. The descriptions are of necessity concise, and indeed in some instances perhaps the author errs on the side of omission. Thus we find only one variety of cyst of the vagina alluded to and that one not the most common—viz., the one derived from the duct of Gartner. Injuries to the perineum are fully dealt with and Emmet's operation is well described and illustrated. The chapter on the Normal Position of the Uterus and its Supports is an excellent one and forms a good introduction to those which follow, dealing with the important conditions of prolapse and displacements of the uterus. The teaching as regards anteflexion agrees with that usually found in English text-books—namely, that it is of no importance by itself, and that the symptoms at times accompanying it require treatment, not the displacement. Some interesting statistics are given of the after-results of the operation of ventro-suspension of the uterus. Out of 310 cases operated upon by the author or his assistants the results in 211 are as follows. In 131 cases the symptoms for which treatment was sought were relieved, in 49 cases improvement followed, while in 31 cases there was no improvement. 20 women became pregnant, and all of these went to full term and the children were all born alive. In 18 of the cases the labours were normal, in one forceps were applied, and in one labour was prolonged and difficult, although instruments were not used. In eight cases miscarriage occurred, not an abnormal proportion out of 211 patients.

An interesting account is given of the rare condition of congenital erosion and split of the cervix. We notice that the author employs the ugly word "placentoma" as synonymous with deciduoma malignum. In considering the treatment of fibroid tumours the conclusion is come to that the great majority of these growths demand immediate operation. The writer remarks that no drug has been discovered which has any influence on the growth of these tumours. In discussing the treatment of inversion of the uterus some mention might have been made of the various operations apart from hysterectomy which have been devised for the treatment of those cases which cannot be dealt with by instrumental re-position. The advice which is given with regard to the operative treatment of cases of tubal disease is good and the dangers of the various conservative measures which are so strongly urged by many writers are pointed out clearly. That tuberculosis of the tubes is a fairly frequent affection is shown by the figures given by the author who has met with this condition in no less than 18 per cent. of the cases operated upon for inflammatory diseases of the uterine appendages. Recent observations have shown that cysts of the corpora lutea are not so rare as is stated in the chapter on Cystic Tumours of the Ovary. It is true that they rarely attain any very large size and are therefore more interesting from the pathological than from the clinical point of view. The great importance of gonorrhœa as an etiological factor in diseases of women is indicated by the fact that a chapter is specially devoted to a discussion of this affection. Professor Penrose is careful to point out how easily the importance of the gonococcus may be overrated and how difficult it often is to prove with certainty that any particular patient has really had an attack of gonorrhœa perhaps some years before she comes under observation, and the careful physician will therefore be loath to make such a diagnosis unless he has good grounds for doing so. It is an undoubted fact that many men who suffer from gonorrhœa before marriage become completely cured and never infect their wives.

The last five chapters of the book are devoted to the technique of gynæcological operations, the after-treatment of patients operated upon, and the effects of the removal of the uterine appendages. The author is to be congratulated upon his success in presenting the main facts of the diseases of women in a work of moderate size and in so clear and lucid a manner. The book should well fulfil the purpose for which it is written and it is a more trustworthy guide than many works of greater pretentions.

Opuscula Selecta Neerlandicorum de Arte Medica. (Selected Memoirs and Addresses on Medical Subjects, by Dutch Authors.) Amsterdam: F. van Rossen. 1907. Pp. 325.

HOLLAND has at all times been well represented in the world of literature and science, but for the general reader the nationality of many Dutch authors is obscured by the fact that at one time they wrote in Latin with their names latinised, and at a later period many of them wrote in French or German with a view to reaching a larger public than that of their own country. A modern tribute to some of the great names of old has been paid by a leading Dutch medical journal, the *Nederlandsch Tijdschrift voor Geneeskunde*, which has celebrated the fiftieth anniversary of its first appearance by publishing the handsome volume now before us. Out of the large amount of material at its disposal the committee appointed by this journal selected six articles by the following authors: Desiderius Erasmus of Rotterdam (in Latin); Antoni van Leeuwenhoek of Delft (in Dutch); Jan Swammerdam (in Dutch); Hermann Boerhaave of Leyden (in Latin); Jerome David Gaubius of Leyden (in Latin); and F. C. Donders of

Utrecht (in Dutch). Translations of each are also provided—in English for the first and second, in German for the third and sixth, and in French for the fourth and fifth. The article by Erasmus is a general encomium on the art of medicine, and contains a short notice of what would now be called a case of multiple personality. The example taken from the writings of Leeuwenhoek is a communication made to the Royal Society of London in 1688, in which he describes the blood corpuscles of the tadpole, frog, and fish and announces his discovery that in these creatures the arteries conveying blood from the heart led into the veins which returned the blood to the heart. The paper by Swammerdam is on various phenomena of contractility in the muscles of the frog. Boerhaave is represented by a public oration which he delivered before the University of Leyden in 1703. In a portion of this address he draws attention to the necessity for medical men having a good knowledge of the physical sciences, specially instancing geometry, mechanics (now subdivided into statics and kinetics), machine construction (*fabrica machinarum*), pneumatics, hydrostatics, and chemistry. This list of extra-medical subjects is quite as long as could have been expected at that period; microscopy, of course, was included as a department of anatomy and physiology. Gaubius was professor of chemistry in the University of Leyden, and the article by him now published was a lecture in which he claimed for chemistry a place among the subjects of the university curriculum (*chemiam artibus academicis jure esse inserendam*). The style of this lecture, which was delivered in 1731, is decidedly rhetorical and florid. Professor Donders of the University of Utrecht was, of course, a pioneer of modern ophthalmology. The specimen of his literary work given in the present volume is, however, a lecture delivered in 1848 on the Principle of Harmony in Animal Life. This principle is shown in the mutual adaptation of animals and their environment. In South America, for instance, the llama confines itself to the mountain regions of Chili and Peru without ever descending to the plains of Brazil. The reindeer, a native of Lapland, suffers from the summer heat when it is brought into lower latitudes; and, on the contrary, monkeys and tropical snakes require to be kept warm in northern climates. Full-page portraits of each of the authors except Swammerdam are given, and there is a large folding plate illustrating the microscopical discoveries described in the paper by Leeuwenhoek. The general appearance of the volume as regards typography and binding is tasteful and the monographs which it contains, Leeuwenhoek's in particular, are interesting to the student of the history of medicine.

LIBRARY TABLE.

Upon the Therapeutic Properties of the Waters of Baden (Switzerland) in the Treatment of Gout. By Dr. PAUL RÖTHLISBERGER. London: John Bale, Sons, and Danielsson, Limited. 1907.—Within half-an-hour by rail from Zürich, the "Swiss Baden" continues to be frequented by sufferers from gout, acute and chronic, and for reasons well set forth in this tractate by the well-known consultant physician, Dr. Röthlisberger. Known to the ancient Romans, it has a special note of commendation from Tacitus, after which it seems to have fallen into neglect, to re-emerge, however, into fame and popularity in the fifteenth and sixteenth centuries. Since then it has, like other resorts of the kind, gone through many alternations of fortune, losing favour in the eighteenth century and regaining it in the nineteenth, till now, in the century not yet in its teens, it attracts a larger *clientèle* than ever. All these vicissitudes are graphically described by Dr. Röthlisberger who treats us to a "march past" of the resident physicians, mediæval and modern, under whom its fortunes have waxed and waned, and then proceeds to state and to strengthen its special claims on the victim to gout. These are, put shortly, its activity in promoting the excretion of uric acid; its influence upon the formation of uric acid in the body; and its effects in counteracting that demineralisation in gout which has been noticed by Gaube, Lahmann, and other authorities. Illustrating these positions by expert analyses of the waters and by clinical experience of their effects, Dr. Röthlisberger appends to his work a copious bibliography from which the scientific or professional reader can check or confirm the conclusions arrived at, which are: that the sulphur waters of the Swiss Baden employed externally and internally are of distinct benefit in gout, whatever may be the theory of its "pathogenesis"; and that be the predisposing causes of gout and the conditions favouring its development what they may the experience of centuries indicates the said waters "as a therapeutic measure which should not be disregarded or lightly discredited."

Eating to Live, with Some Advice to the Gouty, the Rheumatic, and the Diabetic. By JOHN JANVIER BLACK, M.D. London and Philadelphia: J. B. Lippincott Company. 1906. Pp. 412. Price 6s.—Under this somewhat whimsical title Dr. Black, who dates his preface from Delaware, U.S.A., has written a useful treatise on the principles of dietetics. Moderation in both eating and drinking is what he chiefly enjoins, together with the avoidance of haste and preoccupation at meal times. He therefore disapproves of several well-established usages, such as eating for mere social enjoyment and to pass away time. This he considers to be tampering with the digestive organs, and there is a characteristic American institution which he does not scruple to condemn in his reference to "the horrors of the quick lunch where all the laws of health as to digestion are violated." In his recommendations with regard to the selection of a suitable dietary Dr. Black makes much use of Professor Chittenden's experiments with "eating squads" composed of men of various ages. An average individual in the United States is said to consume daily 17 grammes of proteins, whereas seven grammes appeared to be sufficient for the members of Professor Chittenden's squad. Dr. Black therefore concludes that too much meat is eaten and he points out that this great nitrogenous excess is very trying for the kidneys. He particularly denounces the profusion of the daily bill of fare on board ocean-going passenger steamers and asks: "How is it possible for the system to rid itself of the waste from all this inordinate gourmandising?" No doubt his view is correct, but it must be remembered that the circumstances are exceptional, for passengers at sea find time to hang very heavy on their hands, and the hours spent at table are a welcome relief to the prevailing ennui. On the other hand, one of Professor Chittenden's physiologically correct menus, which Dr. Black quotes with approval, would create dismay in the mind of the ordinary diner-out. A great deal of miscellaneous information with regard to various kinds of meat, fish, fruit, edible fungi, and other foodstuffs is given in these pages, together with good advice on diet at various periods of life and in a number of diseases.

Women's Health and How to Take Care of It. By FLORENCE STACPOOLE. Second edition revised. London: Simpkin, Marshall, Hamilton, Kent, and Co. Bristol: Wright and Co. 1906. Pp. 165. Price, stiff boards, 1s. 6d.; cloth, 2s. 6d.—We are glad to see that the authoress has brought out a second edition of this little work. It contains in clear and simple language many things as to the care of their health that all women ought to know. The ignorance which many women display on the subject of the common disabilities of their sex is most astonishing and books like this, if they only can be placed in the hands of those for whom they are intended,

will certainly do much good. We are glad to see that stress is laid in the preface on the danger incurred by women attempting to treat themselves in any way beyond the moderate limits here laid down, and we cannot but re-echo this warning. With this reservation this book rightly used should be of the utmost service.

JOURNALS AND MAGAZINES.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. MCKENDRICK, F.R.S. Vol. XLI. Third Series, Vol. II., Part 4. With plates and illustrations in the text. London: Charles Griffin.—A notice is issued with this number to the effect that after the current year the journal will appear in two independent parts. One will be devoted to the consideration of anatomical, histological, morphological, and embryological subjects and will be designated the Anatomical Part at a cost of 21*s.* per annum. This part will be edited by Professor D. J. Cunningham, associated with Sir William Turner, K.C.B., Professor A. Macalister (Cambridge), and Professor G. S. Huntington (New York). The other will be named the Physiological Part and will be edited by Professor E. A. Schäfer (Edinburgh), associated with Professor F. Gotch (Oxford), Professor W. D. Halliburton (London), Professor C. S. Sherrington (Liverpool), and Professor E. H. Starling (London). The price per annum for the four quarterly parts will be the same—21*s.* The first Physiological Part will be published in January, 1908. The contents of the present number are as follows:—1. A New Topographical Survey of the Human Cerebral Cortex, being an account of the distribution of the anatomically distinct cortical areas and their relationship to the cerebral sulci, by G. Elliot Smith, F.R.S., professor of anatomy, Government School of Medicine, Cairo. The author believes that in human brains two or three hours after death appearances are presented which can be fixed by the intravenous injection of formalin and permit the several areas having distinct physiological functions to be mapped out. Illustrations in the text show the position of these areas, as well as the functions attributed to them. 2. A Study of the Navicular in the Human and Anthropoid Foot, by T. Manners-Smith, M.A., M.B. Cantab. In this article a careful description of the navicular is given which is illustrated by no less than 26 excellent drawings of the bone in man and animals. 3. Varying Positions of the Carpal Bones in the Different Movements at the Wrist, by Henry M. Johnston, M.B., R.U.I. (Dublin). The varying relations of the carpal bones to each other in the different movements of the wrist-joint are well given and illustrated by 18 figures in the text. 4. A Brain with Complete Absence of the Corpus Callosum, by John Cameron, M.D. Edin., F.R.S.E. (Manchester). No details of the psychological conditions of the subject could be obtained. 5. A Case of Fusion of the Semilunar and Cuneiform Bones, by Adams A. McConnell, B.A. Dub. 6. A Method for Determining the Position of the Base of the Eye Sock, by Evelyn John Evatt (Cardiff). 7. The Lateral Fixation of the Cervix Uteri, by Ella G. A. Ovenden, M.D. R.U.I. (Dublin). This part contains the index and title page and table of contents of the forty-first volume of the journal and the Proceedings of the Anatomical Society of Great Britain and Ireland for November, 1906.

Man.—In the August number of *Man* Mr. H. C. Lugg describes some singular customs observed by the natives of Natal and Zululand in connexion with puberty, burial, and pregnancy. Young men on first presenting symptoms of virility are required to bathe in running water, to have their heads shaved, and to abstain from any food into which milk enters. A young woman remains in seclusion in a portion of her mother's hut for two or three months. Bodies are prepared for burial immediately after death by doubling up the legs until the knees touch the chin and binding them firmly round with a blanket; the body is afterwards placed in the grave in a sitting position. Women on becoming pregnant are treated with various medicines for several months by licensed male or female herbalists, but no males are allowed to be present at confinements.

WE reviewed in our issue of August 3rd a work by Dr. J. Dulberg entitled "Marriage and Disease," being a translation and abridgment of a well-known German work on the same subject by Professor H. Senator and Dr. S. Kaminer. In the course of a favourable review of a useful work our reviewer alluded to the price being excessive, but Dr. Dulberg has recalled to our mind that the price was fixed not without a reason, and a reason of which we must all approve. In dealing with certain sociological topics it is sometimes wise to take care that books or treatises do not fall into the hands of the too young or the merely prurient, and the most efficient method of preventing this occurrence is to price the work highly.

New Inventions.

THE AEOSAN BATH.

AT the Second International Congress on School Hygiene recently held in the large hall of the London University an interesting demonstration was given of the mode of employing the aeosan bath for the treatment of disease. The aeosan bath provides a bath effervescing with either carbonic acid or oxygen gas. The apparatus is quite simple. It consists of a series of sparge tubes or tubes provided with a number of perforations. This coil is adapted to the shape of the bath and rests on the bottom. It is attached to a cylinder of compressed carbonic acid gas or oxygen by means of a flexible tube. On giving the valve of the cylinder a turn or two myriads of small bubbles stream through the water from hundreds of points and saturate it with gas. The Nauheim effervescent bath is thus imitated, and the use of chemical salts which often corrode the bath is dispensed with. Salt and calcium chloride can, of course, be added at the discretion of the physician. The Aeosan Company of 102, Charlotte-street, Birmingham, were responsible for the demonstration.

THE "VARIABLE" ELECTRIC LAMP.

THE "variable" electric lamp contains two filaments, one of low and the other of relatively high candle-power. There are three contacts on the lamp which by an ingenious device can be made to rotate immediately under the circuit contacts. The result is that the small filament can be switched on to the circuit independently of the large filament and *vice versâ*, or both filaments may be connected. The lamp thus gives three powers at will by merely rotating it. A lamp, for example, may have a small filament giving five candle-power situated within a large filament giving 16 candle-power. Then three lights are possible—namely, five candle-power (the small filament), 16 candle-power (the large filament), or 21 candle-power (both filaments in the circuit). The economy it is possible to effect by this arrangement is obvious, while it is not difficult to think of a number of circumstances which would make the "variable" lamp of great convenience. The life of the chief filament may be spared and a saving of current effected. In short, the "variable" electric lamp affords the analogy of turning the gas up or down. The lamp may be obtained of the "Variable" Electric Lamp Syndicate of 109, Victoria-street, London, S.W.

THE TOTNES (DEVON) BOARD OF GUARDIANS AND VACCINATION.—AT a meeting of the Totnes board of guardians, held on August 16th, the report of the vaccination committee was adopted, stating that on consideration of the new order and after consultation with the public vaccinators they were of opinion that the present vaccination fees were not excessive and that no alteration should be made.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT EXETER.

THE SECTIONS.

PATHOLOGY.

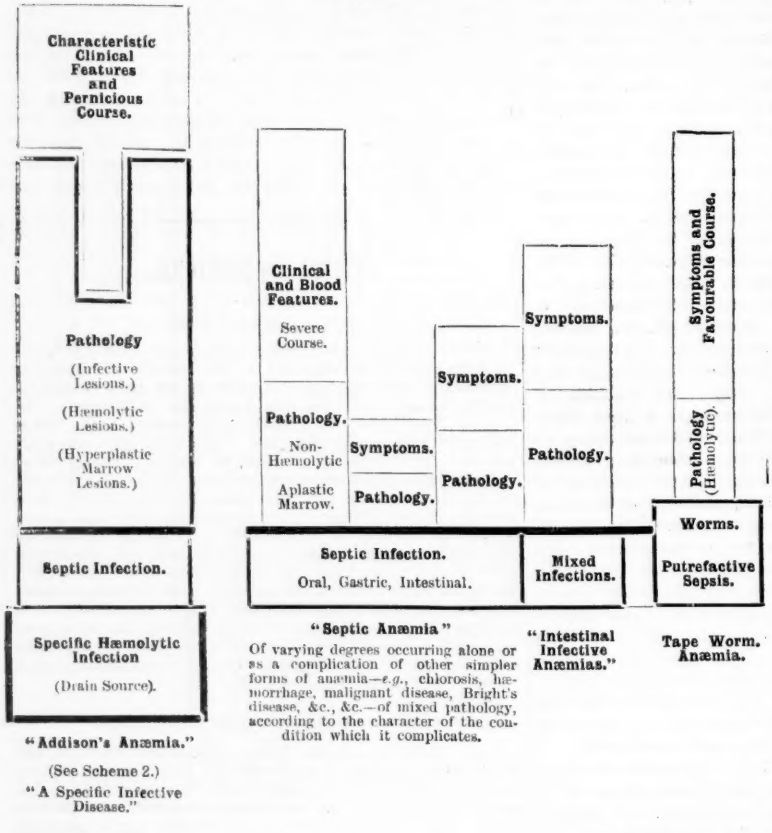
WEDNESDAY, JULY 31ST.

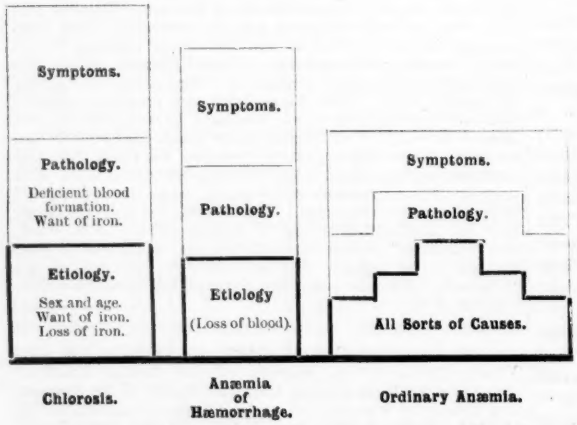
The PRESIDENT of the Section (Professor R. MUIR of Glasgow) at once entered into the business of the day by asking Dr. WILLIAM HUNTER (London) to open the discussion which had been arranged on the subject of

Pernicious Anæmia and Allied Conditions.

Dr. Hunter said that he could best contribute to the purposes of the discussion by confining himself more particularly to the great problem of the unity or plurality of that condition first described by English observers under the title of idiopathic anæmia—a problem which continued to divide observers into two great and hostile camps. His own observations on the subject extended over 21 years of work and would be grouped under two headings: (1) the character of the observations on which the conclusions were based; and (2) the character of the conclusions formed. For and against the individuality of this admittedly most severe and fatal of all forms of anæmia he should illustrate and summarise his remarks by the aid of lantern slides of the observed lesions, curves and charts, and a series of schematic tables. The character of the observations had been in succession experimental, anatomical, clinical, chemical, diagnostic, and finally etiological, bacteriological, and historical. The pathological observations of the last seven years regarding the significance attached to the infective lesions subsequently to be described were based upon a general pathological experience extending over 1000 post-mortem examinations and the clinical observation of some 50 cases of the disease. The results showed conclusively that Addison's anæmia was not only a remarkable form of anæmia but a remarkable specific infective disease with characteristic etiology, and its mode of onset, clinical features, and course should be separated off, once and for all, from all other forms of anæmia in the manner indicated in the accompanying diagram (Scheme I.). With the assistance of other schematic tables Dr. Hunter traced the history of pernicious anæmia from the early records of Addison of an idiopathic anæmia without discoverable cause, no distinctive pathology, and without symptoms other than those due to the anæmia itself (1855–1871); through the school of Biermer, when the etiological factors were put down as poverty, chronic discharges, puerperal conditions, and so on, in addition to all the ordinary causes of anæmia, with "predisposition" as a support to any or all of these; the anatomical changes were stated to be of no pathogenetic significance whatever, although the hæmorrhages and the bone marrow changes were noted by many writers; and the symptoms dismissed as having no special features and little diagnostic value (1871–1888), so that the affection came to be regarded

SCHEME I.

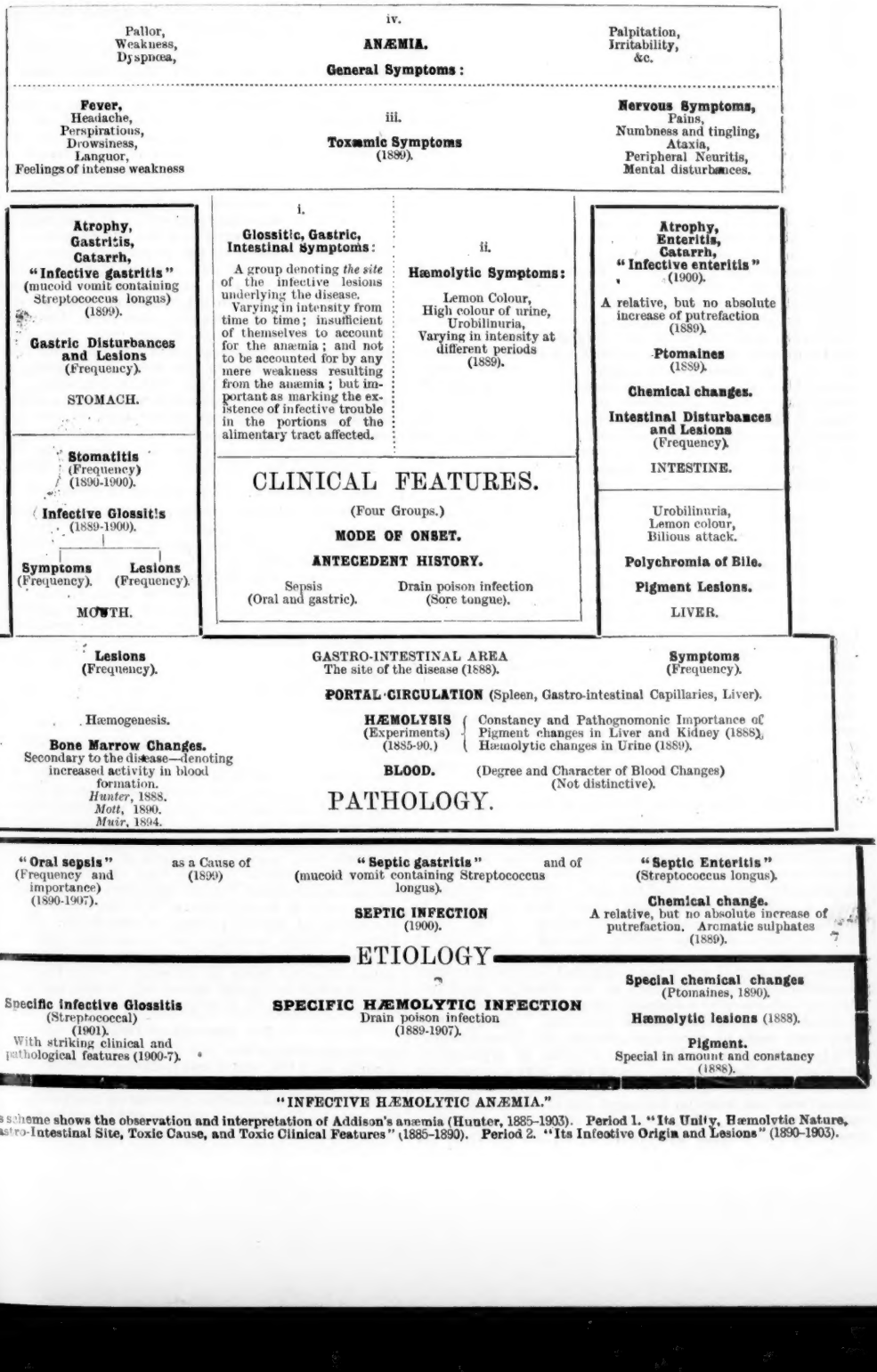




Showing the etiological relations of Addison's "idiopathic anæmia" and other forms of anæmia.

merely as a secondary form liable to be superposed upon any ordinary anæmia if the factors producing the primary disease were sufficiently active and powerful. Next, by the aid of the schematic table here inserted (Scheme II.), Dr. Hunter rapidly summarised his own observations and conclusions (1885–1903) and showed that the disease was a specific entity, that the primary etiological factor was a specific hæmolytic infection giving rise to a specific infective glossitis which precedes and underlies sepsis of the entire alimentary tract; that the pathological edifice raised upon these foundations was special, constant, and pathognomonic, and comprised lesions in the gastro-intestinal area, hæmolysis occurring in the portal circulation and evidenced by pigment changes in the liver and kidney and hæmolytic changes in the urine, changes in the bone marrow denoting increased hæmogenesis; that the symptoms were characteristic and could be arranged in hæmolytic and gastro-intestinal groups which were inseparable from the pathological conception of the disease and were surmounted by groups of symptoms referable to toxæmia and anæmia respectively. Dr. Hunter then referred to the confusion of the issue which had resulted from the writings of Ehrlich which put forward the theory that the essential changes were blood changes—megaloblastic degeneration—and that the disease presented no clinical features other than those

SCHEME II.


iv.
Pallor, Weakness, Dyspnœa,
ANÆMIA.
General Symptoms:
Palpitation, Irritability, &c.
Fever, Headache, Perspirations, Drowsiness, Languor, Feelings of intense weakness
iii.
Toxæmic Symptoms (1889).
Nervous Symptoms, Pains, Numbness and tingling, Ataxia, Peripheral Neuritis, Mental disturbances.
Atrophy, Gastritis, Catarrh, "Infective gastritis" (mucoid vomit containing Streptococcus longus) (1899).
Gastric Disturbances and Lesions (Frequency).
STOMACH.
i.
Glossitic, Gastric, Intestinal Symptoms:
A group denoting the site of the infective lesions underlying the disease. Varying in intensity from time to time; insufficient of themselves to account for the anæmia; and not to be accounted for by any mere weakness resulting from the anæmia; but important as marking the existence of infective trouble in the portions of the alimentary tract affected.
ii.
Hæmolytic Symptoms:
Lemon Colour, High colour of urine, Urobilinuria, Varying in intensity at different periods (1889).
Atrophy, Enteritis, Catarrh, "Infective enteritis" (1900).
A relative, but no absolute increase of putrefaction (1889).
Ptomaines (1889).
Chemical changes.
Intestinal Disturbances and Lesions (Frequency).
INTESTINE.
Stomatitis (Frequency) (1890-1900).
Infective Glossitis (1889-1900).
Symptoms (Frequency).
Lesions (Frequency).
MOUTH.
CLINICAL FEATURES.
(Four Groups.)
MODE OF ONSET.
ANTECEDENT HISTORY.
Sepsis (Oral and gastric).
Drain poison infection (Sore tongue).
Urobilinuria, Lemon colour, Bilious attack.
Polychromia of Bile.
Pigment Lesions.
LIVER.
Lesions (Frequency).
Hæmogenesis.
Bone Marrow Changes. Secondary to the disease—denoting increased activity in blood formation. Hunter, 1888. Mott, 1890. Muir, 1894.
GASTRO-INTESTINAL AREA The site of the disease (1888).
Symptoms (Frequency).
PORTAL CIRCULATION (Spleen, Gastro-intestinal Capillaries, Liver).
HÆMOLYSIS (Experiments) (1885-90.)
Constancy and Pathognomonic Importance of Pigment changes in Liver and Kidney (1888).
Hæmolytic changes in Urine (1889).
BLOOD. (Degree and Character of Blood Changes) (Not distinctive).
PATHOLOGY.
"Oral sepsis" (Frequency and importance) (1890-1907).
as a Cause of (1899)
"Septic gastritis" (mucoid vomit containing Streptococcus longus).
and of
"Septic Enteritis" (Streptococcus longus).
SEPTIC INFECTION (1900).
Chemical change. A relative, but no absolute increase of putrefaction. Aromatic sulphates (1889).
ETIOLOGY
Specific infective Glossitis (Streptococcal) (1901). With striking clinical and pathological features (1900-7).
SPECIFIC HÆMOLYTIC INFECTION Drain poison infection (1889-1907).
Special chemical changes (Ptomaines, 1890).
Hæmolytic lesions (1888).
Pigment. Special in amount and constancy (1888).

"INFECTIVE HÆMOLYTIC ANÆMIA."

This scheme shows the observation and interpretation of Addison's anæmia (Hunter, 1885–1903). Period 1. "Its Unity, Hæmolytic Nature, Gastro-Intestinal Site, Toxic Cause, and Toxic Clinical Features" (1885–1890). Period 2. "Its Infective Origin and Lesions" (1890–1903).

dependent on the poverty of the blood, a hæmatological conception of the pathology and symptomatology of the disease which had a tendency to mislead and confuse those who had not carefully followed and assimilated the constructive evidence accumulated by the speaker. Dr. Hunter then detailed, with the help of lantern slides, the changes, naked-eye and microscopical, that accompanied the lesions of the gastro-intestinal area, as shown in the tongue, stomach, and intestine, comparing and contrasting them with the appearances in similar situations in cases of other forms of anæmia, cancer, and the like.

Dr. G. LOVELL GULLAND (Edinburgh) next contributed to the discussion some theoretical considerations on

The Pathogenesis of Pernicious Anæmia.

He stated that he should present some theoretical points for consideration. In the first place, although the exciting causes of pernicious anæmia might be very various, there must be some one cause common to all cases, since the effect in different cases upon the blood and marrow was so similar and was apparently influenced by definite laws. The disease was generally regarded as a reversion to an embryonic type—in other words, that pernicious anæmia was a condition resulting from the presence of a hæmolytic toxin which after the normoblastic process of regeneration had been exhausted in the endeavour to repair the destruction impelled the individual to substitute the megaloblastic process and thus produce an embryonic type of blood. It would, however, appear probable that a process of inhibition rather than destruction occurring in subjects who had some congenital or acquired weakness of the bone-marrow underlies the observed phenomena. In support of this contention he adduced the inhibitive influence of the toxin of pernicious anæmia upon the development, or at least the appearance in the blood of the neutrophile series of cells, and suggested that the relative lymphocytosis which was so common a feature of pernicious anæmia was actually a leucopenia of polymorphonuclear neutrophiles, although in the remissions of the disease there were usually many myelocytes in the bone marrow. Dr. Gulland then referred to his own interpretation of Dr. Goodall's researches on embryonic hæmatogenesis, and suggested that the erythroblasts without hæmoglobin were not derived from primitive megaloblasts but directly from mesenchyme cells, and that they must be regarded as peculiar to mammals in which the megaloblastic type of blood formation was embryonic only and did not persist throughout adult life. It was well known that a certain number of these megaloblasts were to be found in all mammals as a survival of embryonic life; if then the toxin of pernicious anæmia inhibited normal blood formation the demand of the organism for hæmoglobin carrying cells would stimulate these megaloblasts into activity, and produce the typical clinical picture of megaloblastic blood. These cells not being suited to the needs of the mammalian organism it was the products of their destruction that appeared as iron in the liver and urobilin in the urine. In conclusion, Bunting's experiments with ricin and saponin were referred to as showing that toxic influences produced conditions closely resembling those present in pernicious anæmia, and controverted Hunter's assumption that the blood destruction which he maintained was the feature of the disease took place in the portal system.

Typical Blood Characters in Pernicious Anæmia and Allied Conditions.

Dr. C. H. MELLAND (Manchester) then briefly referred to the distinctive characters of the clinical symptoms of pernicious anæmia which were present in the majority of cases, but reminded the members of the section that such symptoms were occasionally absent, and stated that he wished to emphasise the pathognomonic importance of the blood changes which were so readily observed microscopically and further contended that treatment could only be successfully carried out when controlled by frequent blood examinations to note the effect of the measures employed. He then demonstrated a series of ten excellent lantern slides of blood films typical of various conditions. The first three were from cases of pernicious anæmia and showed respectively megalocytes, reduction in number of erythocytes, irregularity in their size and shape (but large average size) and their granular degeneration, and the slight reduction in number and the irregular but large size of the red cells in a convalescent case. The fourth from one of the cases after two and a half months' treatment showing the return of the blood cells to the normal type. The fifth, from a case of cancer of the stomach, which resembled clinically pernicious anæmia, showing the normal type of cell although the erythrocytes were reduced in number. The sixth from a case of rheumatoid arthritis, and the seventh, from one of secondary anæmia, showed irregularity in size of the red cells and some poikilocytosis, but an absence of megalocytes. The eighth, from a case of severe chlorosis, showed a few megalocytes, but the vast majority of the red cells were normal in character. The ninth, from a case of carcinoma of the stomach, showed several megalocytes, but the bulk of the red cells were smaller than normal and the cell index was stated to be reduced to 57 per cent. of normal. The last of this interesting series proved a typical case of leukanæmia.

Dr. A. GORDON GULLAN (Liverpool) then detailed the results he had obtained in

The Treatment of Pernicious Anæmia with Bone Marrow,

premising that in each of the several cases that had come under his observation during the past few years the presence of a definite lesion of the alimentary tract could be demonstrated, which lesion was, he considered, the site of infection, whether microbic or toxic. He related the clinical symptoms of three recent cases and showed by means of curves (indicating the erythrocyte count and the hæmoglobin percentage respectively) the results of treatment. It was noted that the preliminary administration of arsenic in all cases produced a fall in each curve, but withdrawal of this drug and the substitution of fresh bone marrow from the ox, as red as possible, given at every meal in the form of sandwiches, resulted in a steady rise both in the number of red cells and in the amount of hæmoglobin present: in one case from 1,200,000 red cells per cubic millimetre, associated with 37 per cent. hæmoglobin, to 4,500,000 red cells, and 98 per cent. hæmoglobin after two months' treatment, and in another case from 2,500,000 cells, with 67 per cent. hæmoglobin, to nearly 5,000,000 cells and 110 per cent. hæmoglobin. The point which Dr. Gullan emphasised was that notwithstanding disinclination and nausea on the part of the patient the marrow must be persevered in and its administration pushed to a much greater extent than had hitherto been done.

Professor J. LORRAIN SMITH (Manchester), dealing with

Some Aspects of the Blood Changes in Pernicious Anæmia,

differentiated between true pernicious anæmia and conditions which simulated pernicious anæmia. Of the latter, he instanced the classical cases of infection with bothriocephalus latus in girls which was at first thought to be chlorosis, and mentioned that similar infections with some other intestinal worms, such as tænia solium and tænia medio-cannellata, rarely produced anæmia; ankylostomiasis anæmia, which was of the chlorotic type; malarial anæmia, which was frequently of the pernicious anæmia type; and some recent cases of malignant tumour of the bone marrow and fibroma of intestine where the anæmia also presented features resembling pernicious anæmia. In true pernicious anæmia there were presented for study three groups of pathological changes—viz., those connected with the blood and bone marrow, those connected with the gastro-intestinal mucosæ, and those connected with sclerosis of the posterior column of the spinal cord chiefly in the dorsal and cervical segments, and while it was true that experimental study of the disease had failed completely to reproduce pernicious anæmia there was no evidence to contradict the hypothesis that pernicious anæmia was primarily due to a toxæmia. Contrasting chlorosis with pernicious anæmia so far as concerned the hæmoglobin present and the total blood volume, Professor Lorrain Smith stated that in the former disease hæmoglobin was present in normal amount but was *diluted* by reason of the excess of normal plasma in circulation, whilst in the latter a definite *hæmolysis* had taken place and the hæmoglobin was reduced in total amount to, say, 50 per cent. (the lowest observed being 28 per cent.), while the total blood volume might be normal, subnormal, or even increased.

Dr. R. HUTCHISON (London) then discussed

The Anæmias of Childhood

and remarked upon the fact that pernicious anæmia did not occur in early life, which was remarkable whatever view was taken of the etiology of the disease when one considered the existence of all the conditions favouring megaloblastic formation and also the ease with which severe anæmia was produced; for in addition to the readily destructible character of the

blood it must be recollected that at all rate up to the age of three years the long bones were entirely filled with red (not yellow) marrow, leaving no effective margin for new blood formation. The rarity of pernicious anæmia in childhood would suggest that the specific hæmolytic toxin postulated by Hunter as an essential factor was almost inoperative in childhood. Again, another bone-marrow disease, myelogenous leukæmia, was clinically extremely rare in childhood and the hypothesis was advanced that the comparatively common condition labelled lymphatic leukæmia was possibly the intensely acute form of myelogenous leukæmia which overwhelmed the infant before the typical granulation of the myelocyte had had time to develop, and it was suggested that the specific toxin of pernicious anæmia might similarly prove so rapidly fatal in early childhood that the clinical picture of pernicious anæmia never appeared and the possibility of the association of this disease with the acute and fatal cases of infantile purpuric anæmia was referred to. Dr. Hutchison then remarked upon the necessity for investigating the essential constituent in bone marrow which produced the good results recorded by Dr. Gullan, for while yellow marrow consisted principally of fat and red marrow only of hæmoglobin and nuclein compounds containing iron, it was difficult to attribute *a priori* therapeutic value to either form. Finally, Dr. Hutchison referred to the fact that prolonged destruction, or to speak more correctly long-continued loss of blood, did not give rise to pernicious anæmia and related a case of bleeding piles in which the continuous loss of blood extending over a period of five years gave rise to a profound anæmia in which the characters of the blood changes were those of secondary anæmia only and in which after operation and consequent cessation of the systemic drain complete and rapid recovery took place.

Dr. A. E. BOYCOTT (London) directed his remarks to

Ankylostomiasis Anæmia,

for as the anæmia of ankylostomiasis had often been called pernicious, thereby implying that its symptoms, cause, and pathological anatomy were identical with those of idiopathic progressive anæmia, it would be useful to direct attention to some of the abundant points of distinction. First, with regard to the etiology and occurrence of ankylostomiasis anæmia it should be noted that although its existence had been known for more than half a century it was only within very recent times that it had been recognised as a factor to be reckoned with in the production of chronic ill-health and industrial inefficiency throughout the warmer parts of the world, and the speaker instanced the reports of the Puerto Rico Commission, which showed that fully nine-tenths of the agricultural population suffered from a profound ankylostomiasis anæmia and although the prevalence of the disease was limited in Western Europe by conditions of temperature, moisture, and oxygenation, still there were places where favourable conditions prevailed and its effects might be as severe as in the tropics. Two points of great pathological interest were then mentioned; the first, that two varieties of ankylostoma which zoologically were clearly differentiated specifically and, according to some, generically also, inhabited the same host and produced identical lesions in striking contrast to the specificity of host that generally characterises animal parasites; and the second, that many ankylostoma hosts presented no symptoms of infection beyond eosinophilia—anæmia being conspicuous by its absence. With regard to the symptoms of ankylostomiasis anæmia these were readily comparable to those of the "idiopathic" disease in so far as they were dependent upon the anæmia *per se* in each, but one practical point of some importance must be noted that the reduction in hæmoglobin as measured clinically bore a different relation to the severity of the symptoms in the two cases—for instance, a patient suffering from ankylostomiasis anæmia might be regularly engaged in fairly severe manual labour even when the hæmoglobinometer recorded from 30 to 40 per cent. only of the normal, while a case of pernicious anæmia with the same percentage of hæmoglobin would be practically prostrate and confined to bed. The blood changes, too, showed marked and fundamental differences. Histologically the majority of the erythrocytes in ankylostomiasis anæmia were smaller than normal and contained a diminished quantity of hæmoglobin. In pernicious anæmia, on the other hand, the bulk of the red cells were above the average size and the cell index was above normal. Again, in the anæmia due to the parasitic infection the total amount of hæmoglobin underwent no diminution, but the total blood volume was often doubled owing to dilution with normal plasma, and consequently as the anæmia progressed the colour index of the erythrocyte fell. This was possibly because erythrocytes were turned out by the bone marrow in numerical excess but in qualitative defect and the blood was diluted to avoid the difficulties of an increased viscosity, as, indeed, obtained in polycythæmia, while in the case of pernicious anæmia there was a real deficiency of hæmoglobin, but owing to the loss of red cells also the colour index remained fairly steady or even showed a tendency to rise as the anæmia became more profound.

Professor ALEXANDER R. FERGUSON (Cairo) who followed dealt with other aspects of

Ankylostomiasis Anæmia

and stated that the opportunities of studying the blood in this disease as it occurred in Egypt were limited to its later stages and that it was quite usual to find when the patient first came under observation that his erythrocyte count was reduced to less than 2,000,000 per cubic millimetre and that the hæmoglobinometer yielded a reading of from 23 to 25 per cent. The anæmia itself was due to different factors and the effects upon the blood must be regarded as due to their mingled action. The factors germane to the discussion were (*a*) hæmorrhage, and (*b*) intestinal sepsis, and it was the influence of the latter that the speaker wished particularly to emphasise, as he considered that it sometimes conferred on ankylostomiasis anæmia special characters which closely simulated those of idiopathic progressive anæmia. The sites of attachment of the ankylostoma duodenale became sooner or later minute septic foci and in cases where these existed in large numbers the influence of septic absorption from the intestinal tract produced its effects on the blood. In every case of ankylostomiasis examined an active myeloid transformation was noted occurring in the femur. One feature of this red, vascular, and highly cellular tissue was the multiplication of nucleated red cells, a considerable number being of the megaloblastic type, which were observed in it. The presence of iron, either free or in very unstable combination, was easily demonstrable in the liver and sometimes in the liver and spleen of these cases.

Professor I. WALKER HALL (Bristol) then contributed

A Consideration of the General Metabolism in Pernicious Anæmia,

and said that investigations into the general metabolism in pernicious anæmia had yielded somewhat discordant results. The variations being too pronounced to be ascribed to individual factors suggested that the "symptom-complex" of pernicious anæmia was the expression of the action on the tissues of more than one type of irritant. As the total metabolism did not reflect any unanimity in the cases examined nor throw any suggestive light upon the causative factors, it is necessary to look to the intermediate metabolism for further indications. The processes of oxidation considered as a whole were not materially altered. The blood contained a diminished amount of oxygen, necessitating additional labour on the part of the tissue cells to obtain the required oxygen, this over-effort resulting in exhaustion predisposing to fatty changes. It was significant, too, that sugar and starches were well tolerated. In pernicious anæmia there was no abnormal disintegration of protein, and retention of nitrogen was a common finding, and the metabolism of purin bodies was approximately normal. Amongst the mineral substances, retention of chlorides occurred in some cases; in others, however, marked losses occurred. With regard to the processes of digestion and absorption, distinct subacidity, or absence of HCl, and diminished secretion of pepsin were noted, and these secretions exhibited close relationships with the anæmia, being increased or diminished as the anæmia improved or progressed. Both the bile and the fæces contained more than the normal amount of urobilin. The fæces contained excess of nitrogen, the loss ranging from 5 to 21 per cent.; but it was uncertain whether this loss was due to deficient absorption, or to excess of secretions and infiltrations of the leucocytes, &c. The absorption of fat was not good. In many cases there was increase of fæcal fat and the fatty acids varied from 52 to 72 per cent. A feature of the blood in pernicious anæmia was the general increase in the residual nitrogen. The deepening of the colour of the urine was not yet satisfactorily explained, but the presence of hæmatoporphyrin had been recorded by Taylor and hæmoglobinuria by Schmidt. The percentage of urea N to the total

nitrogen was extremely irregular, cases reported presenting figures varying from 67·9 to 85 per cent. Creatinin was always low. Indican was generally increased, the increase being attributed to intestinal conditions and to putrefaction changes in the extravasated blood. The total sulphur was variable. Albuminoses had been demonstrated in the urine by Laache and Noorden, and Schmidt. Glycosuria was very rare. The occurrence of amino acid, nitrogen, and of lactic acid required further investigation by trustworthy methods. The distribution of iron in pernicious anæmia varied considerably and was difficult of explanation. Post mortem it might be found deposited in the liver and kidney, or in the liver or in the kidney alone.

Dr. F. G. BUSHNELL (Brighton) presented some preliminary observations on

The Treatment of Pernicious Anæmia by "Vaccines,"

carried out upon four cases of pernicious anæmia occurring in the Sussex County Hospital during the past nine months. First pledging his adhesion to the toxic and hæmolytic origin of the condition, as elaborated by Dr. Hunter, the speaker explained that the treatment of pernicious anæmia was in general so hopeless that he isolated micro-organisms from the mouth and even from the fæces of his cases and prepared vaccines from the bacterial growths thus obtained, which were then utilised for the treatment of his patients. One case was treated successively with vaccines prepared from a streptococcus isolated from the mouth, a staphylococcus from the sockets of the teeth, a colon bacillus from the same site, and a colon bacillus obtained from the patient's fæces. At the commencement of the treatment there were less than one million red cells per cubic millimetre, and the hæmoglobin stood at 20 per cent. After three weeks' treatment marked improvement took place, but a relapse followed and the patient succumbed after three and a half months' treatment. The speaker brought forward his observations in this early stage in the hope that the vaccine treatment of pernicious anæmia might be given a more extended trial by the members of the section.

Dr. FRANK M. POPE (Leicester) referred to Dr. Hutchison's remarks upon anæmia in childhood and suggested that some cases of very acute anæmia terminated in chloroma, and in support of his suggestion quoted a case in which deposits of iron were found in collections of bacteria, surrounded by a casing of ferruginous pigment. (This case was fully reported by Dr. Pope and Dr. W. E. Reynolds in our issue of May 18th, 1907, p. 1351.)

The PRESIDENT of the section, before calling on Dr. Hunter to close the discussion, remarked that he concurred in the view that the abnormal blood destruction was the essential feature of pernicious anæmia; and in view of the pigment deposits in the organs and also having regard to the results of comparison with other and allied conditions the bone marrow changes could not be regarded as primary; instancing as other similar conditions bothriocephalus anæmia, pernicious malaria, and saponin poisoning, in all of which a megaloblastic change might be present.

Dr. HUNTER then congratulated the section on the mass of data and the wide range of observations that had been presented by the various speakers who had contributed to this discussion and in a few short sentences closed the subject of pernicious anæmia.

Professor WALKER HALL then communicated a new method for

The Estimation of Fat in Fæces,

which aimed at the estimation of the total quantity of the fat in the fæces, since this was now considered to yield a more accurate result than the percentage amount of separate portions. Each step had been worked out by comparing the results with similar estimations by the older methods. The method was as follows: 1. Administer a known quantity of fat in the food. Prescribe fluid extract of hæmatoxylin before and after the proteid concerned. 2. Transfer the entire stools to a mortar. Add normal KOH and stir until a homogeneous solution is obtained. Make up to 500 cubic centimetres with distilled water. Shake well. 3. Take 50 cubic centimetres and heat for 20 minutes. 4. Add 50 cubic centimetres 95 per cent. alcohol. Heat for 20 minutes. 5. Add strong HCl until markedly acid (any trustworthy indicator may be used). 6. Heat for 20 minutes. Filter. Evaporate down to 50 cubic centimetres. 7. Take 5 cubic centimetres and determine the percentage in a "milk" centrifugal tube, just as in an ordinary estimation of fat in milk. Or take 20 cubic centimetres in a Schmidt-Werner tube, and make a Schmidt-Werner estimation. After calculation from the dried residue of the aliquot portion of the ethereal extract, multiply the result by 25. If the process was interrupted at 3, then the amount of fat extracted approximated that of the fatty acids. This result deducted from the quantity yielded by the whole process, yielded, according to a number of comparative estimations, an approximate amount for the neutral fats. No definite claim was made for these figures. The method cited had been varied in many ways by the introduction of various fat solvents at all the stages, but their presence had introduced factors of pigment, &c., so they had been discarded.

Dr. FRANK EVE (Hull) presented a communication relating to

Peculiar Bodies Found in Some Pathological Cerebro-spinal Fluids.

The author concluded as follows: (1) In certain pathological cerebro-spinal fluids when examined fresh under an oil immersion there may be seen minute filaments with very active lashing movements simulating spirochætæ; (2) these may be seen to originate from the degeneration of leucocytes which extrude finger-like processes which become long filaments, which in turn run into rows of spherical beads; (3) these three stages are to be regarded (presumably) as surface tension effects, the first two stages being in unstable and the last in stable equilibrium; (4) the motility of the filaments, though very life-like, may be explained as the resultant of the Brownian movement of a number of beads on a string, each bead trying to oscillate independently; (5) motile globular bodies consisting of one or more spheres variously linked by filamentous junctions are often seen in cerebro-spinal fluids, sometimes in large numbers—these originate in the same way as the filaments; (6) the occurrence of these filaments and motile globular bodies may prove worthy of note clinically when found in quite fresh cerebro-spinal fluid, as they may then afford evidence of cell degeneration "intra vitam," or be an index of degenerative changes in the central nervous system.

Dr. BAYON (London) remarked that similar filaments could be observed extruded from degenerating white cells from the peritoneal cavity of the guinea-pig that had been first inoculated intraperitoneally with a small quantity of copper sulphate solution (1 per cent. or 2 per cent.) followed an hour or so later by an intraperitoneal injection of leucocytes; and, in reply to a query from the PRESIDENT of the section, Dr. EVE stated that the bodies he described had never been stained by any of the six or eight varieties of dyes that he had employed.

Professor JAMES M. BEATTIE (Sheffield) communicated some notes on

A Sporozoon in Aural Polypi,

which appeared identical in all respects with a sporozoon he had previously found in nasal polypi obtained from the same district in India and described at the Toronto meeting of the Association. That parasite had been studied by Minchin and Fantham and had been named by them Rhinosporidium Kenealyi. In the light of the present communication, however, it was evident that the name Rhinosporodium must be abandoned. In the aural polypi investigated the young and developing forms in the spore morulæ were very numerous, but all stages could be made out, and by a new method of staining a bright-red chromatic granule could be demonstrated in each of the spores in the spore morulæ. In the small cysts with undifferentiated granular protoplasm there was noted a pale, irregular nucleus and a bright chromatose granule or nucleolus, which in larger cysts becomes broken up into a number of scattered granules. In older cysts still the appearances very closely resembled those shown by the Leishman-Donovan bodies, and later the protoplasms became divided into 15 or 16 rounded spores. By special staining methods there was noted with absolute constancy a larger bright red granule in one particular spore which the speaker suggested might correspond to the blepharoplast of the flagellata, or might be comparable in function to the micronucleus of the infusoria, the spore containing it being a special generative one. Professor Beattie then gave details of the special methods of staining.

OBSTETRICS.

FRIDAY, AUGUST 2ND.

Dr. CUTHBERT LOCKYER (London) read a paper upon

The Operative Treatment of Carcinoma of the Cervix Uteri.

He referred to the fact that no united effort had been made in England to educate the public to recognise the earlier

symptoms of uterine cancer and mentioned the success achieved by Winter in East Prussia in this respect. Winter began his crusade "against cancer" in 1902 and it was high time that English gynæcologists took some steps in this important matter. At the present time many cases which presented themselves were too far advanced to promise much hope from surgical interference. Dr. Lockyer stated that his experience in vaginal hysterectomy for cancer of the cervix was highly unsatisfactory and in spite of the fact that there had been no primary mortality he had given up the operation. Since July, 1905, he had adopted Wertheim's method, which he maintained was the only scientific way of dealing with cancer of the neck of the womb because it minimised the risk of implantation of cancer upon freshly-cut surfaces. It did this by means of a free dissection of the vaginal tube, and by the clamping of the latter before the vagina was amputated the growth of the cervix was thus hermetically inclosed in a vaginal capsule at the time of its removal. This was the one essential point in the operation. If the vagina was accidentally incised in the neighbourhood of the growth or if it tore on removal recurrence would take place. This was the reason for recurrence in one of Dr. Lockyer's cases. Whilst free dissection of the parametrium and removal of cancerous iliac glands were important parts of Wertheim's technique, they took a subordinate place when compared with the essential encapsulation of the cancerous area by the dissected vagina. Dr. Lockyer's experience in regard to abdominal panhysterectomy for cancer of the cervix comprised 12 cases. These 12 cases represented 70·59 per cent. of all cases seen between July, 1905, and July, 1907. Whilst employing the vaginal route he had operated upon 18 per cent. of the cases seen. Two patients had died from recurrence. In one of these cases the vaginal sheath had been accidentally incised, the other was a case which had been discharged as hopeless after six weeks' stay in one of the largest general hospitals in London. Six of the 12 cases were free from recurrence. From Wertheim's statistics it was seen that in his first 30 cases the primary mortality was 12, in his second 30 cases five, and in his third series three, and from this may be gathered the encouraging fact that extended experience reduced the primary mortality.

Mrs. STANLEY BOYD (London) supported Dr. Lockyer's advocacy of the abdominal route. The line of recurrence was of importance and she asked Dr. Lockyer if the recurrences to which he referred were in the glands or in the connective tissue. She had frequently seen cystitis and inability to void urine. Dr. Herbert Spencer had already suggested that this was due to drainage by iodoform gauze—the method she used—and she would like to know whether other experience supported that of Dr. Lockyer that it was undesirable to drain in this way.

Dr. F. EDGE (Wolverhampton) wished to ask Dr. Lockyer his view on the way of spreading of the uterine cancer. They knew that in cancer of the breast the spread was partially in the fascial interspace and connective tissues and that mere enucleation of lymph glands was useless. It was therefore a question whether removal of glands without their surrounding cellular tissue would tend to any permanent result in preventing recurrence.

Dr. HERBERT SPENCER (London) could not agree with Dr. Lockyer that vaginal operations were to be entirely abandoned. The history of the past, showing that the patients remained well for from five to 20 years after high amputation of the cervix with the galvano-cautery, proved that this method of operating could not be reasonably abandoned. He agreed, however, that in the more advanced cases Wertheim's operation was the proper one. The great point about the removal with the galvano-cautery was that local implantation of cancer cells was prevented. He did not use a gauze drain and still thought that the trouble with the bladder in Mrs. Stanley Boyd's cases was due to its use. He would like to point out that Werder, who had really been before Wertheim in the performance of the operation under discussion, had given up the operation because he thought the vaginal operation with galvano-cautery was better.

Dr. T. WILSON (Birmingham) said that his experience with Wertheim's operation was very unfortunate. Out of his first seven cases he lost five and during the last month he had performed it four times and had lost one case.

Dr. J. M. MUNRO KERR (Glasgow) did not think that it was fair to compare statistics of Wertheim's operation with vaginal hysterectomy. He agreed that it was not good treatment to use a gauze drain.

Mr. J. D. MALCOLM (London) supported the views expressed by Dr. Lockyer, assuming that when cancerous glands were present the operation was of comparatively little value. In early cases without infection of glands the excision of the uterus by Wertheim's method enabled the surgeon to remove the disease more freely than did any other method, and Dr. Lockyer had drawn attention to the very important point that the method enabled them to remove the growth without seeing it on any cut surface. The operation in early cases should have a very low mortality. He had for some years done a panhysterectomy wherever he had removed the uterus for fibroids and he was surprised to find how easy Wertheim's operation was. In fact, he thought that he felt more comfortable in avoiding the exposed ureters than in excising the cervix without seeing the ureters. The only scientific method was to get these cases early and to remove the parts as wide as possible as was done in any other part of the body.

The PRESIDENT of the section (Dr. E. H. TWEEDY of Dublin) said that he always performed the abdominal operation now and did not pick his cases; he operated on every case in which he thought he could relieve the woman, quite apart from curing her. The essence of Wertheim's operation was that the uterus could be drawn over the pubes and the ureters made to shine through the peritoneum. He often operated on cases far more advanced than this. If the uterus was fixed it could not be drawn over the pubes, yet in many of these cases he had operated with much relief to the patient. He did not think a heavy mortality was a contra-indication. Many women with cancer left behind after the operation went back to their work, their pain was relieved, and they might live some time. It was a cowardly thing not to give women the benefit of surgical skill even if a cure could not be promised, and he did not believe for an instant that recurrence in these patients prevented other patients from seeking relief. In early cases the mortality by abdominal operation was no greater than was that by the vagina and he quite thought that if it could be done early enough the mortality of Wertheim's operation would be brought to 10 per cent.

Dr. LOCKYER, replying, thought that the cystitis mentioned by Mrs. Stanley Boyd was due to the gauze drain. He was entirely against using the drain and had found that when he did use it he always got suppuration. The chief point of Wertheim's operation was that implantation of cancer cells could be prevented, and it was this more than the question of infected glands that made the operation so satisfactory. He could not agree with Dr. Spencer about vaginal hysterectomy being a good method. His own experience of losing seven out of 13 cases would prevent his doing that operation in the future.

Professor PAUL STRASSMANN (Berlin) read a paper upon

The Indication for, and the Methods of Operating on, Uterine Fibroids.

He pointed out that from the point of view of operation the tumour was not so important as the complications which were so often found accompanying it. He laid great stress on disease of the appendages, heart disease, pressure on the bladder, and pain. He considered that vaginal hysterectomy was a better operation than abdominal hysterectomy when it was possible to perform it, because there was no abdominal scar, and no chance of stitch abscess, or hernia, whilst patients preferred the vaginal operation. In woman over 50 years of age with bleeding the operator considered that a diagnostic curettement should be made in order to determine whether hysterectomy or enucleation should be performed.

Professor STRASSMANN exhibited a large number of very beautifully mounted

Specimens of Fibromyoma of the Uterus

which he had removed.

Dr. HERBERT SPENCER was sure that the members of the section were very much obliged to Professor Strassmann for bringing so many magnificent specimens to this country at such trouble and expense. He (Dr. Spencer) was fond of enucleation through the vagina in suitable cases. Many times he had enucleated submucous fibroids, left subperitoneal fibroids behind, and the patients had got quite well and remained free of further trouble. Dr. Spencer did not agree that the vaginal route was a good way to remove large tumours; it was not so safe; bleeding could not be so well controlled as he himself knew from experience, having lost a case from hæmorrhage after the vaginal operation. He was very glad to hear that Professor Strassmann was in

favour of panhysterectomy when operating from the abdomen. In the last seven years he himself had performed the operation of panhysterectomy from the abdomen 85 times with only two deaths, one from embolism on the twelfth day and the other from syncope on the sixth day. He looked upon the operation of supra-vaginal hysterectomy as an operation of the last century.

Dr. WALTER W. H. TATE (London) was interested to find that Professor Strassmann's experience was the same as his own with regard to the occurrence of carcinoma of the uterus with fibroids, that the presence of both in the same uterus was more common than was usually supposed, but he could not agree that the presence of fibroids was a predisposing cause of cancer; he thought that it was much more likely that both diseases had risen independently in the same woman. He thought that if a woman after 50 years of age, who was known to have a fibroid, suffered from bleeding carcinoma should be suspected. He (Dr. Tate) had noticed that the complications of the uterine appendages were very often associated with impacted fibroids, so that he regarded impaction as an indication for removal of the uterus even if it were giving rise to no symptoms. He also agreed that in fibroids complicating pregnancy abortion should never be procured. Either the patient should be allowed to go to term and the condition dealt with then as might seem best or the uterus with its contents should be removed at once.

Dr. WILSON could not see the advantage of the tongue-shaped incision advocated by Professor Strassmann over the T-shaped one. He had yet to be convinced of the advantage of leaving an ovary; he thought that the present teaching was based on mere assertion. There was no proof that could satisfy any scientific and impartial mind that it was better to leave an ovary. With regard to the relationship of carcinoma and fibroid he was sure that there was such a one. In 40 per cent. of his cases of carcinoma of the body fibroids were discovered; in his cases of carcinoma of the cervix only 5 per cent. had fibroids. Perhaps this might be due to the fact that carcinoma of the cervix occurred in younger women than carcinoma of the body; still the very large percentage of fibroids present in his cases of carcinoma of the body made him suspect there was something more than a casual relation between these two diseases. In his own cases of fibroids he had found complications of the uterine appendages in at least 40 per cent. He thought that the pyosalpinges were due to previous infection and not due to the fibroid—at any rate, as a rule. He thought a great danger of pyosalpinx was that it was likely to cause an impaction of the fibroid.

Dr. SWAYNE (Bristol) was in favour of panhysterectomy and not of supra-vaginal hysterectomy.

Mr. MALCOLM in the case of larger fibroids had obtained better results by abdominal removal, and thought that in panhysterectomy the chief point was drainage. He quite agreed with Dr. Wilson that there was no proof that the woman was better for having an ovary left, and he was led to this view by remarking how very well his patients had done in the cases where he had been forced to remove both ovaries.

Dr. MUNRO KERR remarked that the mortality of abdominal hysterectomy had now fallen to between 2 per cent. and 3 per cent., and he would like to know whether Professor Strassmann had found a lower mortality by the vaginal operation.

The PRESIDENT of the section said that he could not imagine why Professor Strassmann should prefer the vaginal operation to the abdominal. The danger of suppuration and hernia had been mentioned, but anyone who had seen Professor Strassmann operate would see that with all the great care he took the former complication would surely be very rare, whereas he did not think there was any risk of hernia with Professor Strassmann's transverse incision. His own mortality for abdominal hysterectomy was very small and the cases he had lost were due to gross neglect of some point of detail such as infected catgut ligatures. Professor Strassmann had stated that he would not operate on a myomatous uterus without marked reason, or in other words he would leave it alone if it was doing no harm. He could not agree with this. If a patient sought advice with a myoma it was because it was doing harm, and he had found that all patients with fibroids who had consulted him would be better without them. A woman with a fibroid was always in some danger, especially of carcinoma. It had been pointed out that only 2 per cent. of cases were complicated with carcinoma, but the mortality of hysterectomy was now only 2 per cent. He was surprised at Dr. Wilson's remarks about leaving the ovaries, for he could not imagine why a normal ovary should be removed when performing a hysterectomy any more than the woman's nose. If the ovary was healthy why not leave it? and he personally had found that his patients had done much better since he had left their ovaries.

Professor STRASSMANN replied in a very few words and stated that he did not have a higher mortality with vaginal hysterectomy than with abdominal, and that one of his reasons for favouring the vaginal operation was that the patients liked it better; they had no wound to see and there was no risk of hernia. He had had no death after vaginal hysterectomy but had had one after enucleation.

Dr. J. INGLIS PARSONS (London) read a paper on

Notes on a Series of 100 Consecutive Abdominal Sections in Hospital Practice.

He attributed great importance to aseptic measures in operating and considered them the chief means to success. He had lost one patient out of the 100. The cause of death was pneumonia seven weeks after the operation and was not apparently caused by the operation. He advocated myomectomy for single fibroids when it could be done without extra risk. Included in the list was one large fibroma of the broad ligament extending to the umbilicus, with the bladder adherent. Among the cases of ectopic gestation was one of tubal abortion without rupture of the tube. For chronic retroflexion in working women he advocated ventro-suspension, as it enabled them to do their work sooner. For hysterectomy in fibroids he preferred to work as much as possible without forceps on account of the bruising they caused. Seven cases of pyosalpinx, some with ovarian abscesses as well, were operated upon. Of these, two had embolism of a branch of the pulmonary artery, causing dulness over the third of the right lung. Hysterectomy was performed for two cases of persistent menorrhagia where several curettings had failed to stop the loss. Fibrosis of the uterus was the cause in one and recurrent adenoma in the other. The abdomen was closed in three layers. Silk was used for all ligatures and also for suturing the wound, with the exception of the middle layer where silkworm gut was used. The silk was boiled and afterwards put in carbolic.

The PRESIDENT of the section said that he always boiled his silk in corrosive sublimate, as by so doing the silk was impregnated with this substance which prevented any germs that might settle on it during the first three or four days, before the leucocytes were in a proper condition to deal with them, from growing. He also followed Kocher's advice and method to use the thinnest silk possible and never used a thicker size than number four. He used silk for all ligatures and sutures, except where suppuration was present, when he used catgut. He congratulated Dr. Parsons on his brilliant results, which, however, did not contain any cancer cases and personally he had found that this made all the difference to statistics. Lastly, he thought Dr. Parsons kept his patients in too long. He did not at all agree that a case which died from pneumonia a day or so before she was going to be discharged, after being in the hospital seven weeks, should be included as a death from abdominal section.

Dr. MUNRO KERR read a paper on

Complete Rupture of the Uterus with Escape of the Fœtus into the Peritoneal Cavity; Panhysterectomy; Recovery.

He detailed a case of complete rupture of the uterus with escape of the fœtus into the peritoneal cavity in which he had performed panhysterectomy with successful result. The uterus had ruptured after a prolonged labour apparently spontaneously. The rupture had not been attended with extreme pain or shock. When the abdomen was opened the full-time child was discovered free in the cavity along with only a very small quantity of blood, liquor amnii, meconium, and vernix caseosa. The child was removed, when the tear involving the right side and front of the lower segment of the uterus was readily seen. The uterine vessels were clamped, the uterus was quickly removed, after which the ligatures were applied to the vessels, and the abdomen washed out. The peritoneum in the lower part was brought together, a gauze drain inserted into the ragged broad ligament, the end being pulled out through the vagina. The abdomen was then closed and an intravenous saline transfusion given. The recovery of the patient was uninterrupted. Dr. Munro Kerr then referred to the symptoms and treatment of ruptured uterus, basing his remarks on the experience of 14 cases. He pointed out that the classical symptoms of profuse bleeding and extreme shock were

in many cases not present, the collapse coming on very gradually and sometimes not at all. This applied to both forms—the complete and incomplete ruptures. As regards the treatment of the 14 cases, two died unoperated upon, three were treated by plugging, and nine were treated by hysterectomy. Of the three cases treated by plugging all the patients recovered and of the nine cases treated by hysterectomy three recovered. In all the cases of hysterectomy except one the rupture was complete, whereas in all the cases where plugging was had recourse to rupture was incomplete. Dr. Munro Kerr was of opinion that at present plugging offered a very good chance of recovery, except when the child had escaped into the peritoneal cavity.

The PRESIDENT of the section regretted that there was no time to discuss Dr. Munro Kerr's interesting paper and said that he thought that the chief point in these cases was to determine when to perform hysterectomy and when to plug.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

WEDNESDAY, JULY 31ST.

The PRESIDENT of the section (Dr. R. MCKENZIE JOHNSTON of Edinburgh) in a brief address welcomed those who had come to take part in the work of the section and expressed his grateful thanks for the very great honour that had been conferred upon him in making him President of that section. In view of the important discussions, in addition to the large number of papers, they had before them he decided to set an example in brevity by withholding the address which originally he had intended to give. He would merely mention two topics and commend them for individual consideration. The first was what they ought to do to emphasise the importance of the study of diseases of the throat, nose, and ear, and what could they do to advance the teaching of those subjects? Whilst it would be generally admitted that in the past ten years there had been a vast improvement in the general practitioner's knowledge of their speciality compared with former times, still there was great room for further education in that direction. The President confessed that he was not an advocate for increasing compulsory courses, he would prefer to make the student realise the importance of that branch of medicine rather than insist upon his taking a course the value of which he did not comprehend beyond the getting of a certificate. Their duty was to advocate the importance of a satisfactory knowledge of the subject and to neglect no opportunity of teaching those who require it. The second topic mentioned by the President was the present status of the speciality in the world of medicine. He referred to the time, not very long ago, when they were looked upon with doubt, with suspicion, and with distrust. Now they occupied an assured and respected position and they were entitled to hold up their heads with the best in any branch of medical or surgical science. They owed this in part to the high standard set by their leading men, and to the good work done and being done by a large class of able workers, and also in no small degree to the influence of such meetings as the one they were attending.

Sir FELIX SEMON (London) and Dr. W. JOBSON HORNE (London) opened a discussion on

The Differential Diagnosis of Tuberculous, Syphilitic, and Malignant Disease of the Larynx.

Sir FELIX SEMON in his introductory paper summarised his experiences by saying that the differential diagnosis of the three diseases usually was easy, not rarely difficult, and in exceptional cases for a time almost impossible. Points to be considered were the following: (1) congestion of the vocal cords as an initial sign of tuberculosis, syphilis, and malignant disease (*a*, bilateral; and *b*, unilateral); (2) the difficulties of diagnosis between tuberculosis, syphilis, and malignant laryngeal tumours; (3) laryngeal taberculosis in middle-aged or old people as a source of error in the differential diagnosis between tuberculosis, syphilis, and malignant disease of the larynx; (4) the difficulties of differential diagnosis between all three diseases when appearing in the form of infiltration; and (5) a combination of two of the diseases under consideration and consequent diagnostic difficulties. Sir Felix Semon, whilst agreeing that unilateral congestion of a vocal cord usually was the forerunner of graver constitutional mischief, warned against taking this rule as an infallible one. On the other hand, he quoted an interesting case in which bilateral congestion was the forerunner of malignant disease of the larynx. He gave a full description of tuberculous laryngeal tumours and discussed their differential diagnosis from carcinoma and gummata. He further stated that laryngeal tuberculosis in middle-aged or old people was more frequent than was usually assumed and warned against advanced age being too readily assumed as indicating malignant disease when an ulcerating tumour was seen in the larynx of such persons. This point was illustrated by the communication of several cases. The greatest difficulties, he stated, were encountered in the differential diagnosis between the three diseases when appearing in the form of infiltration of the larynx, inasmuch as the perichondritis, which might supervene in all the three diseases, might completely mask the signs of the original affection. In conclusion, he discussed the combination of two or more of the diseases under consideration and the diagnostic difficulties resulting from such a combination.

Dr. JOBSON HORNE, in introducing the subject for discussion, said that with a view of arriving at a solution of a problem such as the one before them it was as well to have some practical method or scheme to work upon. The scheme he was about to submit was one of elimination and he intended to approach the subject from the standpoint of the exclusion of tuberculosis. When the practitioner in regular attendance ventured an opinion upon an ambiguous disease of the larynx Dr. Horne found that it was generally correct, for the practitioner, being thoroughly conversant with the patient's previous health and family history, was in a position to exclude tuberculosis and syphilis as possible factors. The natural anxiety of a specialist was the fear that he overlooked malignant disease in its earlier stages. That anxiety was reflected in the fact that when an expert made an error in diagnosis it was usually on the side of regarding an innocent growth as malignant and not on that of overlooking malignant disease. Dr. Horne, speaking of his pathological experience, said that there had passed through his hands many specimens of tissue removed from the larynx in the belief that they would show malignant disease and which had occasioned surprise when they had demonstrated tuberculosis. In this experience he was not alone; he made this reference to errors in diagnosis in the practice of others with all humility to show that the elimination of tuberculosis was a point to be gained in the problem before them and the most practical way of arriving at a positive diagnosis of cancer. There were difficulties at times in adopting this course, but in the present day they were not so insurmountable. It would be assumed that the discussion was restricted to intrinsic disease of the larynx. Before proceeding to the objective aspect of the matter there were four facts which might be considered usefully: (1) pain; (2) vocal function; (3) fibrotic degeneration; and (4) previous local treatment. Pain was experienced relatively much earlier and more continuously in malignant disease, whereas in tuberculosis, and still more so in syphilis, there was often a noteworthy absence of pain when the larynx was at rest. Hoarseness or impairment of the vocal function—a most important premonitory sign—when persistent for a long period, was not against the disease being malignant; but a recurrence of impairment of vocal function after an immunity of a prolonged interval was consistent with a recrudescence of tuberculosis where perhaps the disease had become arrested in the lungs. Further, the character of the voice was helpful. There was this marked difference between the hoarseness occasioned by tuberculosis and that by syphilis or malignant disease. In the former the voice was weak, perhaps a mere whisper, due, as he had shown, to a myositis of the intrinsic muscles, whereas in cancer and syphilis the voice was strong though hoarse. Evidence of fibrotic degeneration in other organs pointed to syphilis, cancer, or pachydermia rather than to tuberculosis. As regards previous local treatment, it was essential to the formation of an independent opinion that the larynx should not have been spoilt by some previous application of drugs or cautery or by an attempt to remove a portion of the affected part for an examination. Passing to the objective part of the subject—namely, the laryngoscopic examination itself—Dr. Horne divided the cases into four groups, it being understood that each case was ambiguous and that they were arguing from the unknown to the known. 1. Congestion of the laryngeal mucous membrane and, perhaps, impaired motility of the vocal cord. The congestion might be patchy and limited to only one part, or it might be diffuse and involving both sides. The paresis might be bilateral. 2. Tumefaction, if not a definite tumour or excrescence, with, perhaps, congestion and

impaired motility in addition. 3. Ulceration with, perhaps, the conditions mentioned in the previous two groups. 4. Lastly, evidence of disease external to the larynx such as glandular enlargement. To differentiate the fundamental changes in the larynx in quite the earlier stages of tuberculosis and malignant disease a minute knowledge of the histology was essential and more particularly of the distribution of the two varieties of epithelium, the columnar and the tessellated, and also of the sites of the transitional epithelium. Dr. Horne had previously demonstrated that the part of the laryngeal mucosa which was richest in glandular structure was most vulnerable to tuberculous infection. He had also shown that that part was covered with columnar epithelium, whereas the part which was clad with squamous epithelium was relatively free from glands and was immune against tuberculous infection, becoming involved only by continuity and at a later stage of the disease. On the other hand, it was commonly accepted that epithelioma was by far the most common form of intrinsic cancer of the larynx. It was also commonly agreed that the ventricular bands and the vocal cords were the more frequent sites of origin of epithelioma. Dr. Horne was in favour of still further restricting this statement to those parts of the ventricular bands and of the vocal cords which were covered with squamous epithelium, and of adding to the statement the sites of transitional epithelium. It therefore followed that it was of the utmost importance as an aid to the differential diagnosis between tuberculosis and cancer to localise the site of origin in the earlier stages which they were then considering. Should the congestion be so diffuse as to involve one entire side of the larynx or both sides, then steps could be taken to blanch it by the application of cocaine and adrenalin. The development of adenoid cancer in the regions reserved for tuberculosis was exceptional and did not invalidate the general application of the principles which he had enunciated. All three diseases, he went on to say, had this in common: they consisted essentially, but in varying degrees, of a cell proliferation and infiltration which burrowed extensively and deeply with the result that as the disease progressed the intrinsic muscles became affected and impaired mobility of one or both cords resulted. It therefore followed that impaired mobility was not peculiar to malignant disease and although an important sign when present it might be absent in quite the earlier stages. It would seem that impaired mobility of a vocal cord was of value as evidence of malignancy in those cases in which the disease presented a well-defined tumour or excrescence, other than pachydermia, and which might be mistaken for an innocent papilloma or new growth. The sign was also of service in cases in which the origin of the growth was so deep-seated that fixation of the cord was the only clinical feature observable in the larynx above the level of the glottis. Passing to the second group—the stage of tumefaction or of a definite tumour or excrescence—he said that the situation of the tumour would assist in excluding or admitting tuberculous disease into the diagnosis, unless the tumour happened to be situated at a site of transitional epithelium such as the vocal process, as was the case in pachydermia laryngis. Dr. Horne referred to a paper which he read at the Portsmouth meeting of the Association in 1899 to show that pachydermia laryngis should be regarded more as evidence of disease than as a disease in itself. It might be occasioned by syphilis, or tubercle, or cancer of the larynx, and even the variety which might claim to be called simplex was not uncommonly associated with fibrotic disease in other organs. It therefore followed that a diagnosis of pachydermia was not sufficient in itself. They had to be prepared to exclude the causation of the pachydermia. In illustration of this point Dr. Horne referred to the case of the late Emperor of Germany. Passing to the third group of cases in which the tumefaction had broken down and there was ulceration, he reminded them that they would be considerably assisted in excluding tuberculosis by the pathological fact which he had demonstrated elsewhere—namely, that when tuberculous disease in the larynx presented ulceration that in the lungs had already reached cavitation; further, that primary tuberculosis of the larynx was a negligible quantity. Dr. Horne briefly referred to other forms of ulceration of the larynx which might simulate malignant disease and cited a case in which extensive ulceration along one-half of the larynx had been the site of infection in a case of infective endocarditis. Passing to the fourth and last group, in which there was external evidence of laryngeal disease such as glandular enlargement, he said this might appear to be in itself presumptive evidence of the disease in the larynx being of a malignant nature. It did not, however, exclude the possibility of it being tuberculous. Before eliminating tuberculosis in a differential diagnosis he mentioned that cases had been recorded in which tubercle and cancer had occurred in the same larynx. Assuming that tuberculosis had been eliminated in the manner indicated from the diagnosis, the problem then resolved itself into a diagnosis between syphilis and cancer. Tuberculosis having been excluded, large doses of iodide of potassium might then be pushed without doing the patient harm, and assuming that the condition in the larynx cleared up, as it generally did if it was purely syphilitic, then the diagnosis might be allowed to rest with that of syphilis, more particularly if there was a strong history in support of it, but needless to add, such a history would not exclude the possibility of syphilis being only a factor in the case and not the important part of the disease. In connexion with cancer Dr. Horne described a method of transillumination of the larynx as an aid in differential diagnosis. In his concluding remarks he referred to the all importance of a laryngoscopic examination and of that examination being made at the earliest possible moment. They had been discussing the most dreaded diseases of the larynx, diseases all amenable to local arrest, if not to cure, when detected early, but all three diseases were so insidious in their onset that they would seem to have no beginning, and yet so progressive in their character that an early examination afforded the only hope of saving the larynx from becoming a most veritable citadel of misery.

Dr. N. C. HARING (Manchester) attached importance to fixation of the cord as evidence of malignancy. In secondary syphilis the anterior part of the cord usually showed more congestion than in tuberculosis or cancer. The damage done to the larynx in some cases of enteric fever at times presented appearances which were difficult to explain apart from the history of the case. In tuberculous ulceration of the posterior part of the larynx the lungs were less extensively affected.

Mr. HERBERT TILLEY (London) cited a case of tuberculosis which clinically so closely resembled cancer that an exploratory thyrotomy was performed before the diagnosis was cleared up.

Dr. J. DUNDAS GRANT (London) considered that the unilaterality of congestion was of service as an aid in the diagnosis only in the very earliest stages of tuberculosis. He referred to a roughness associated with redness of the vocal cord met with in tubercle and differing from the beefy redness seen in simple laryngitis. In secondary syphilis the redness was quite indistinguishable unless mucous patches were present.

Dr. G. WILLIAM HILL (London) spoke in favour of the clinical procedure indicated by Dr. Horne. Animal experiments necessitated a loss of what was often valuable time.

Dr. B. H. SCANES SPICER (London) considered that Dr. Horne had put before them the method of the future for making a differential diagnosis. He considered that extrinsic malignant disease was more frequent than commonly stated and that hospital statistics would support this view, using the term extrinsic to include those cases originating within the larynx and extending beyond as well as those strictly extrinsic in origin.

Dr. H. S. BIRKETT (Montreal) mentioned that tuberculin had been found of the greatest value in America, especially in the diagnosis of those cases which presented only localised hyperæmia of one cord and without any signs in the chest.

Dr. W. S. SYME (Glasgow) pointed out that in the early stages of syphilis the tint of the laryngeal mucosa was more purple, whereas in the early stages of tuberculosis it presented rather a pinkish colour.

Dr. ADOLPH BRONNER (Bradford) spoke of a diffuse fibroma of the vocal cord occurring in old people which at times presented a difficulty in diagnosis. The tuberculin test was liable to be followed by œdema necessitating tracheotomy, and it was as well to be prepared for this contingency and to have the patient under observation.

Dr. J. B. BALL (London) spoke in favour of iodide of potassium for diagnostic purposes, and speaking on the general question he considered that there were some cases in which syphilis, and others in which tubercle, would have to be excluded first

Dr. P. WATSON WILLIAMS (Bristol) referred to cases in which either tuberculosis or syphilis could not be excluded. In such cases a heaviness in the movement of the cord improving under vocal rest was in favour of the disease being tuberculosis.

The PRESIDENT of the section, in summing up the discussion, considered that it would prove to be of service to the practitioner. The appearances in these three diseases were not stereotyped; they often overlapped, so that there was no short road to a definite diagnosis. The discussion would curtail a number of mistakes and he agreed that it was important to separate the cases of tubercle as early as possible.

Sir FELIX SEMON and Dr. HORNE thanked the section for the attention it had given their papers and replied.

Mr. W. STUART-LOW (London) read a paper on

Submucous Turbinectomy,

in which he said that the operation was intended for the reduction of an enlarged inferior turbinate body without destruction of the soft parts covering it. The operation was also applicable to the middle turbinate body. He described the details of this operation which could be carried out under a local anæsthetic. In the after-treatment he had found strips of gutta percha tissue of service in dressing the wound.

Dr. HILL, Dr. HORNE, and Dr. WATSON WILLIAMS, who spoke, were of opinion that the operation was one that would seldom be called for.

Mr. STUART-LOW replied.

Dr. ROBERT FULLERTON (Glasgow) contributed the notes of

A Tumour which was Removed from the Right Tonsil and regarded as being a Teratoma.

In his absence the notes of the case were read by one of the secretaries. Drawings and microscopic slides of the tumour were exhibited.

THURSDAY, AUGUST 1ST.

Dr. WATSON WILLIAMS demonstrated Instruments for the Diagnosis and Operative Treatment of Sphenoidal Sinus Suppuration.

Dr. W. MILLIGAN (Manchester) and Dr. HILL opened a discussion on

The Treatment of Chronic Suppuration of the Middle Ear without Recourse to the Complete Mastoid Operation.

Dr. Milligan, in his introductory paper, discussed the various characters of the aural discharge and also the varieties of bacteria found. Passing to the subject of treatment he divided this into four headings: First, with a view of maintaining free drainage, which was most essential, small perforations might be enlarged and the contents of the middle ear drained by means of aspiration by Siegle's or Sondermann's apparatus. Irrigation of the middle ear by means of the Eustachian catheter could only be carried out by skilled hands. Secondly, in view of the fact that a large proportion of cases of middle-ear disease were due to infection through the Eustachian tube, it was necessary to treat all pathological conditions of the nose, naso-pharynx, and mouth. Thirdly, he dwelt upon the importance of a bacterioscopic examination of the discharge as a basis for local treatment. Fourthly, he discussed the various operative measures. Local curetting through the meatus he was not in favour of, as it was difficult to determine by inspection the actual extent of the bony implication. The indications for removal or otherwise of the membrana tympani and ossicles were mentioned, but he was not an advocate for ossiculectomy.

Dr. HILL introduced the subject for discussion with a lucid review of the development of the surgery of the middle ear and of the mastoid process, illustrated by charts demonstrating the chronology of the various operations and the names of the operators. The surgical measures were considered under the following headings:—I. Incisions of the membrane and of adhesions. These alone were rarely of permanent utility but were useful for getting at granulations at the mouth of the Eustachian tube and opening up diseased spots near the annulus. II. Operations by means of curettes, snares, forceps, &c., for the removal of granulations, polypi, loose ossicles, &c., when these were well within view through the meatus. III. Ossiculectomy, with removal of most of the remains of the membrane, on theoretical grounds might appear to be the ideal operation in most cases for securing good drainage of the attic and antrum and for the better carrying out of the intratympanic and other local medications. In practice, however, ossiculectomy, it was contended, had only a limited field of usefulness in chronic middle-ear suppuration on account of the tendency in certain conditions to the formation of diaphragms and regeneration of membrane and of adhesions which often increased deafness and impaired drainage. Dr. Hill submitted that it was undesirable to perform ossiculectomy in the following circumstances:—(*a*) When the perforation was small. In these cases adhesions and re-formation of membrane were prone to result. (*b*) In cases with large reniform perforation, with a shortened manubrium and no adhesions nor granulations evident, and good drainage. This condition was often the result of scarlet fever, the incus was usually absent, and the hearing was often good. (*c*) Where there was a good hearing in spite of chronic suppuration. Here, should really efficient local and hygienic treatment fail, some post-aural operation—e.g., of the type of Küster or of Stacke, but stopping short of myringectomy as recommended by Stacke, Hartmann, Siebenman, Seibe, Jansen, Malherbe, and others eight years ago, and more recently followed by Grant and Heath—was preferable to ossiculectomy through the meatus. (*d*) In cholesteatomatous conditions intrameatal operations were not as efficient as post-aural complete operations and were not free from risks and were rarely to be recommended even as tentative measures. (*e*) In necrosis of the meatal walls, especially where there was a sinus leading into the external wall of attic or into the squamous cells on the roof of the meatus, nothing short of a post-aural radical operation was likely to be of permanent benefit. On the other hand, ossiculectomy appeared to be a justifiable (though uncertain) procedure as a tentative measure which might in some few instances prove curative in the following conditions:—(1) In attic disease with perforation of the membrana flaccida with or without intratympanic granulations and evidence of ossicular necrosis—provided always that there were no bony fistulæ through the external attic wall or on the roof of the meatus and that there was a large perforation in the membrana tensa; (2) in evident displacements of the malleus or of the incus or of both with or without granulations—always provided there was not much membrana tensa remaining; (3) in large perforations of the membrana tensa with or without granulation, but with intermittent stopping up of discharge and recurrent headache; and (4) in large perforations where there was no marked obstruction to discharge but where granulations were seen high up in the tympanum and surrounding the ossicles. IV. Intrameatal atticotomy (usually combined with ossiculectomy) was not believed to be widely practised at the present day, though in recent years it had been resuscitated by Faulder White and strongly advocated by him. It was a question worth discussing whether this operation were often advisable even in the attic disease in view of the real, though slight, danger of wounding either the facial nerve or the internal ear—dangers which were far less likely to happen in the more open radical operation. V. Woolf's intermeatal antrotomy was apparently obsolete and unlikely to be revived.

Mr. E. CRESSWELL BABER (Brighton) continued the discussion and was opposed to the performance of minor operative procedure. He did not consider that in their present state of knowledge treatment could be based upon a bacteriological diagnosis.

Professor RICHARD REEVE (Toronto) spoke in favour of the importance of a thorough examination of the nose and structures adjacent to the ear.

The discussion was continued by Mr. STUART-LOW, Dr. SYME, Mr. GEORGE JACKSON (Plymouth), Dr. H. SMURTHWAITE (Newcastle), Dr. BRONNER, Dr. DUNDAS GRANT, Mr. A. L. WHITEHEAD (Leeds), Dr. A. LOGAN TURNER (Edinburgh), and Mr. W. J. CHICHELE NOURSE (London).

The PRESIDENT of the section summed up the discussion and Dr. MILLIGAN and Dr. HILL replied.

Dr. SYME read a paper on

A Case of Acute Suppuration of the Middle Ear complicated by Septic Meningitis and Brain Abscess.

After giving a full description of this case Dr. Syme discussed the question of what had been called meningism and remarked on the difficulty which frequently arose in deciding as to whether the symptoms which made up this phenomenon were due to actual intracranial disease, to serous meningitis, or to cerebral irritation from toxins or from the proximity of acute inflammatory conditions in the bone.

Mr. CHICHELE NOURSE read a paper entitled "Observations on Frontal Sinusitis."

This concluded the day's proceedings.

FRIDAY, AUGUST 2ND.

Mr. THOMAS GUTHRIE (Liverpool) demonstrated a series of drawings illustrating

The Development of the Middle Ear, with Special Reference to the Origin of the Mastoid Antrum.

The drawings were made from microscopical specimens of fœtal temporal bones of ages ranging from two and a half to seven and a half months of fœtal life. Serial sections were cut of the temporal bones, the plane of section corresponding as nearly as possible with that of the tegmen tympani. Mr. Guthrie considered that the drawings bore out the statement of Professor Young and Dr. Milligan[1] that the antrum was essentially a part of the middle-ear cleft and was not formed as a diverticulum of the tympanum. He thought that the drawings showed also that in the early stages of development the antrum, although present, was relatively of very small size as compared with the tympanic and Eustachian portions of the middle ear cleft. During the greater part of fœtal life the antrum was in no way marked off from the rest of the cleft and was indeed nothing more than the small angular recess with which the middle-ear cleft terminated posteriorly. The walls of the recess were formed by the squama externally and the periotic internally, while it was closed behind by the apposition of these bones. The drawings showed the gradual increase in size of this recess and made it clear that its growth was relatively very great as compared with that of the tympanic portion of the middle-ear cleft, so that at birth the antrum was of large size and marked off from the remainder of the cleft by a definite aditus. Mr. Guthrie wished to express his thanks to Professor Patterson of Liverpool for providing the material for this work, a great part of which was done in his laboratory.

Dr. EUGENE S. YONGE (Manchester) read a paper entitled

"*Observations on the Determining Cause of the Formation of Nasal Polypi.*"

Dr. Yonge said it was generally considered at the present time that a mucous polypus of the nose was, essentially and in its earliest stage, a patch of mucous membrane which had become œdematous, and that the pedunculated appearance which a polypus commonly assumed was a character not peculiar to itself but shared with many other intra-nasal swellings and new formations, and chiefly referable to known physical causes acting on the primary patch of swollen, œdematous mucosa. The question of etiology centred, therefore, on the determining cause of the initial œdema, and of this process a number of explanations, unfortunately more or less incomplete, had been advanced. His investigations (of which a full account had been published in a recent monograph[2]) had led him to the conclusion that the localised œdema of the mucous membrane, which represented the first stage of polypus formation, was a serous infiltration of the tissues, the result of obstruction of the efferent circulation of the part; that the particular vessels which became obstructed were the periglandular capillaries and veins; and that the circumstance which caused the obstruction was the distension or cystic dilatation of the mucous glands—more particularly the gland ducts. The contention that dilatation of the mucous glands was the determining cause of polypus formation, by leading to the localised œdema which initiated the process, was supported by evidence derived from pathological, experimental, and clinical observations which Dr. Yonge detailed.

Dr. WATSON WILLIAMS could not agree with the theories put forward by Dr. Yonge. Reflex neuroses, he considered, very frequently but not always were due to pathological changes, perhaps unrecognised and unrecognisable, but previously established. Polypi were never due to the vascular changes associated with a pure neurosis. They were the outcome of obstruction in the lymphatic vessels in a restricted area of the involved mucosa, an inflammatory change resulting from infection; in a word, an infective lymphangitis with blocking of the vessels analogous to elephantiasis. If the obstruction were temporary the œdema might disappear; if permanent a polypus formed and continued to grow, being fully supplied with blood; indeed, polypi were usually highly vascular structures. In course of time various hypertrophic changes, due to the excessive lymph supply, took place in a polypus.

Dr. SCANES SPICER, Mr. STUART-LOW, and Dr. BRONNER continued the discussion.

Dr. BALL considered that there were three forerunners of nasal polypi—namely, catarrhal conditions, paroxysmal sneezing, accessory sinus suppuration, and that cases could be placed in one or other of these three classes.

Dr. MILLIGAN said that Dr. Yonge's monograph was not convincing. He (Dr. Milligan) desired to associate himself with Dr. Watson Williams and the lymphatic theory, and inquired if Dr. Yonge's theory that polypi were due to an irritant were correct why was it that polypi were never found in snufftakers.

Dr. WHITEHEAD could not fully accept Dr. Yonge's paper. Dr. Whitehead considered that there must be some definite abnormality in the nose, and he believed in the hereditary factor. The infective theory did not explain the occurrence of a single and very large polypus.

The PRESIDENT of the section considered that the views put forward by Dr. Watson Williams were applicable to a large number of cases. The President pointed out that it was not easy to examine cats' noses during life, and it was important to know the clinical condition of the cat as well as the pathological condition met with after death, and on that account the experiments reported by Dr. Yonge were not completely satisfactory.

Dr. YONGE, in reply to a question by the President, stated that the irritant used in these experiments was olive oil with oil of mustard to set up an inflammatory process and for the purpose of bringing about a distension of the glands the animal was placed in a chamber with pepper on the floor.

Mr. GEORGE JACKSON read a paper entitled

The Relative Frequency of Caries of the Superior and Middle Turbinates and Ethmoid Bones, and the Importance of Examining the Nose in all Cases with Symptoms of Deafness, Giddiness and Vertigo, and Throat Affections, with some Remarks on the Treatment thereof.

He stated that whilst he had nothing new to bring forward he was desirous of drawing attention to a condition which was frequently overlooked—namely, ethmoidal disease. Although he was not in favour of the term "necrosing ethmoiditis" he could substantially endorse the work done by Dr. E. Woakes. He referred to his own clinical experience in which he found that of all cases of middle-ear disease upwards of 50 per cent. had some evidence of disease in the ethmoidal region.

Dr. SCANES SPICER applauded the work done by Dr. Woakes and advocated the treatment of nasal conditions in cases of tinnitus and other aural symptoms.

Dr. BRONNER, whilst also applauding the work done by Dr. Woakes, considered that the data could not be so fully accepted in the light of more recent work.

Dr. WATSON WILLIAMS gave a demonstration, with stereoscopic lantern slides, on

Some Points in the Anatomy and Surgical Treatment of Nasal Accessory Sinus Disease.

He showed, amongst others, illustrations of operations on the frontal sinus as practised by Killian of Freiburg and Delsaux of Brussels, and also illustrations of a method he had himself adopted.

Dr. MILLIGAN gave a lantern demonstration on

The Surgical Treatment of Labyrinthine Suppuration.

Dr. BRONNER read the notes of a case of

Thrombosis of the Lateral Sinus with Complete Obliteration of the Jugular Vein.

Dr. ARTHUR HAYDON (London) gave some illustrations of

The Effects Produced by the Singing Voice in a Suitable Medium.

The proceedings closed with a most cordial vote of thanks to the President of the section which was proposed by Mr. CRESSWELL BABER and seconded by Mr. SCANES SPICER and carried unanimously.

OPHTHALMOLOGY.

THURSDAY, AUGUST 1ST.

Mr. F. RICHARDSON CROSS (Bristol) opened a discussion on

[1] Transactions of the Otological Society, June, 1905.

[2] Polypus of the Nose, by Eugene S. Yonge, M D. This work, in which the author first published the theories advanced in the present paper, was reviewed in THE LANCET, April 20th, 1907, p. 1090.

Iridocyclitis.

After a critical survey of the anatomy of the ciliary region and the processes of secretion and absorption of intra-ocular fluid, Mr. Cross, in considering the various forms of iridocyclitis, said that sometimes they observed a fine haze in the anterior part of the vitreous just behind the lens, or dots or fine threads floating in it; this was, perhaps, the simplest sign of altered secretion from Collins's glands or of exudation from the ciliary vessels. Any mild catarrh or hyperæmia of the ciliary body was likely to be accompanied by slight superficial synchisis. Choroiditis was often associated with similar symptoms and should be suspected when synchisis was thick or dense, but extensive choroiditis might be present without vitreous opacities. Serous cyclitis was essentially a catarrhal inflammation of the ciliary body and gland; there was an increase in secretion of aqueous which might be fibrinous and contain leucocytes or even pigment cells. The more solid particles were deposited upon the back of the cornea and produced "keratitis punctata." When the secretion was albuminous it did not readily escape from the eye, so might distend the anterior chamber and cause glaucoma. Most of these cases subsided without permanent damage to the eye, but there was a tendency to recurrence. There was a form of iridocyclitis which was essentially chronic and often binocular. There was keratitis punctata and proliferation of the cells lining the anterior chamber. The exudate was fibrinous and might be deposited upon the surfaces of the iris, ciliary body, on the pars nonplica, and on the retina. Hypopion might be formed. The progress of the exudation depended on the continuance of the original irritation which had produced it. If this were removed the inflammation would cease and further exudation be checked. But the exudate once formed could only be absorbed very gradually and very slowly. In grosser cases the fibroblasts penetrated the exudate, developed fibrous tissue, and formed cicatricial bands or membranes. The lens might be bound down behind by these bands and in front by synechiæ. The ciliary body might be dragged from the sclerotic or the retina from its bed. The pupil might be occluded or the anterior chamber obliterated. Later complete degeneration of the globe might follow; the shrunken eyes, if they did not cause pain and were not the result of external injuries, might be left untouched. When the condition was the result of injury in unhealthy subjects the exudate might be purulent and pan-ophthalmitis might result. These cases of iridocyclitis found their typical expression in what was known as "sympathetic ophthalmia," although this particular form was for the most part subacute. The tension in iridocyclitis varied. In early stages it was frequently subnormal, later it might be raised to such an extent that secondary glaucoma might be produced. In the last stages the atrophic eye was soft. The name was legion of the causes producing iridocyclitis. In syphilis, both inherited and acquired, these lesions were common. In Germany tubercle was said to be the commonest excitant. Rheumatic micrococci had been shown by Dr. Paine and Dr. Poynton to cause it. It was seen in rheumatoid arthritis and in mild form in less definite rheumatoid and gouty conditions. It was not common in gonorrhœal rheumatism. It might form a complication of retinitis from diabetes or Bright's disease. It was common in septic absorptions from carious teeth, nasal, gastro-intestinal, or vaginal inflammations. Mumps, typhoid fever, cerebro-spinal meningitis, cardiac and vascular disease, anæmia had all been complicated by it. Thus it appeared essentially an "end" infection probably dependent on toxin absorption, yet it might be produced by exposure to cold, overwork, or even excessive light stimulus. The treatment of all general diatheses was of first importance, then the eye conditions improved. In all injuries thorough antisepsis must be insisted upon. Rest of the eye and of the patient was essential and the relief of pain; also reduction of pressure by leeches and purges, the use of dry heat or fomentations of belladonna or conium were of much service. Attempts had been made to increase the production of "auto-bodies" in the aqueous and blood serum by sub-conjunctival injections of 4 per cent. salt solution, of sterile air, or of sublimate or oxycyanide of mercury solutions. The use of mydriatics was essential—they relieved the engorged vessels and prevented adhesions of the pupil, and in cases of increased tension atropine reduced it. Dionine was of use in some cases. There were cases where the temporary instillation of eserine was useful for the reduction of high tension, but its continued use increased the hyperæmia. The anterior chamber might be tapped with advantage, and in obstinate cases iridectomy became necessary, particularly when many synechia formed and bombée iris threatened, but the operation must only be done when the eye was quiet.

Mr. W. T. HOLMES SPICER (London) asked what Mr. Cross intended to mean by "strumous." Did he mean tuberculous or not? He had seen one of those cases where iritis had been produced by the injection of the rheumatic coccus, but the appearance of the iris was very different to any form of rheumatic iritis they were familiar with. There were large suppurating nodules in the iris discharging pus into the anterior chamber. The condition seemed more pyæmic than rheumatic. He was not disposed to operate in acute cases. He found the coloboma generally closed again, but iridectomy in recurrent iris he found of greatest value as a preventive and curative agent. He thought eserine best avoided in all these cases.

Mr. J. HERBERT PARSONS (London) reviewed the theories of secretion from the ciliary body. Chronic and sub-acute irido-cyclitis were essentially toxic and the treatment necessitated the removal of the primary disorder. Intestinal disorder was perhaps the most common cause. Mr. Percy Flemming had suggested the testing of the opsonic index for bacterium coli.

Professor LANDOLT (Paris) and Mr. A. C. ROPER (Exeter) agreed that from six to 12 months of quiescence should pass before making an artificial pupil. Mr. Roper believed in the free exhibition of mercury, preferably by inunction.

Dr. J. HERN (Darlington) remarked on the unfavourable results of iridectomies in sympathetic ophthalmia.

Mr. C. DEVEREUX MARSHALL (London) agreed with Mr. Cross as to the value of atropine and if necessary paracentesis, but he thought eserine always did harm, no matter what the tension was.

Dr. REBER (Philadelphia) considered that next to treatment of the general condition iridectomy and the exhibition of dionine were of great value.

Lieutenant-Colonel H. HERBERT (I.M.S.) said that plague was a common cause of the disease in India. In most cases rapid disorganisation of the eye occurred without violent reaction. The atrophy was marked by extreme shrinkage of the cornea and perforation of the ciliary region. Mercury to the point of salivation he found of the utmost service in post-operative cyclitis.

Lieutenant-Colonel HERBERT then read a paper on

Clinical Observations on Spring Catarrh.

The paper was based on observations of 39 cases seen in Bombay during two and a half years. All but seven were males and most were under 40 years of age. All races were liable to the disease. There was no seasonal variation in Bombay; perhaps most occurred in July, the wettest month. The differentiation of obscure cases from trachoma was not always easy, but the presence of follicles in the lower fornix or of lines of scar tissue was almost diagnostic of trachoma. Discharge was rare in spring catarrh, the lids must be held everted for some minutes to produce a filmy exudate on the conjunctiva, but it was always scanty. The diagnosis of spring catarrh was clinched by examining this exudate for eosinophile cells; their profusion was characteristic of the disease; he had found it constant in this but present in no other similar condition. His observation went to show that the disease was of purely local origin, although rarely he had found some nasal trouble. He had recently tried salol in almond oil in the treatment of the condition, since this drug was inert on surface mucosæ but exerted an antiseptic action when absorbed. The results were not of much value.

Mr. CROSS, Mr. PARSONS, and Dr. J. F. CARRUTHERS (Guernsey) all remarked on the rarity of the disease in practice in England. One case in from three to four years was at most their frequency.

Mr. SYDNEY STEPHENSON (London) alluded to cases in which there was a concurrent skin affection, the so-called "summer prurigo" or solar eczema. Diagnosis of the eye condition was only difficult when it was unilateral.

Lieutenant-Colonel HERBERT, in reply, thought the disease was more common than was suspected; mild cases passed unrecognised.

Mr. R. J. COULTER (Newport, Mon.) read a paper on

The Treatment of Alternating Squint.

Worth held that alternating squint was either a stage in the developmental of a true monolateral squint, or an essential

form where there was no refractive error or defect in visual acuity but where the fusion faculty was totally absent. In these latter neither glasses nor operation would produce a cure. Javal, on the other hand, stated that where there was time and the patient was intelligent binocular vision could be restored by operation. He had treated some nine cases where true alternating squint had appeared, and were certainly not variants of monolateral squints, by Javal's method with the best of results. In all these cases glasses had been prescribed and discarded since they did not correct the squint. Good vision was maintained, although the squint had been established in some cases from an early age until the age of 18 years. He practised advancement of the external rectus with tenotomy of the internal rectus, according to the degree of correction required. So far his results had been uniformly good. The eyes looked straight and, what was more important, they maintained concurrent visual axes, for diplopia was noticed if binocular fixation fell off. He secured binocular vision of a quality to obtain fusion of stereoscopic pictures. He thought that when alternating squints were permanent the best course was at once to correct the deformity by operation and then to proceed to show the patient by the amblyoscope or stereoscope what binocular vision was and to try to produce the irritation of diplopia, then fusion was very near. The best age for this was from 12 to 16 years; then a child was keen enough on learning to attend to stereoscopic pictures.

Dr. P. W. MAXWELL (Dublin) agreed that alternating squints yielded better results from treatment than did fixed squints. Operation was particularly indicated in alternating divergent squints.

Mr. E. E. SMITH (Hyde) and Dr. A. HILL GRIFFITH (Manchester) communicated an account of

A Fatal Case of Orbital Thrombosis.

The patient was a man, aged 25 years, a roofmaker; after some exposure on a roof he felt pain in the eyes and had epistaxis. There were throbbing and swelling about the eyes and he could not sleep. On the fourth day the pain in the head was severe and the patient's manner was rambling; the left eye was prominent and the lids and conjunctiva were swollen. The man had suffered from discharge from the ear in childhood; the ear was examined and a scar of the drum was found; there were slight tenderness and œdema about the mastoid, probably caused by a mustard poultice. There was hypertrophy of the middle turbinate bone of the left side, but no discharge. The fundus of the eye was normal. The urine was normal. On the fifth day the left eye became more prominent and the right eye began to be pushed forwards, the pain and delirium increased, Cheyne-Stokes breathing and drowsiness set in, and on the seventh day the man was comatose and died in the night. A diagnosis of orbital and sinus thrombosis had been made on the protrusion of the eyeballs. This bulging subsided immediately after death. A post-mortem examination was not permitted, but in a similar case[1] diagnosis had been confirmed by the finding of a complete orbital and sinus thrombosis without other cranial lesion or middle ear disease.

Mr. PARSONS said that Mr. Percy Fleming had had several such cases at University College Hospital. There was no distension of the retinal veins, probably because the anastomosis was so complete. Usually paresis of the sixth nerve of the opposite side was the earliest indication of the spread of the thrombus.

Dr. JAMES HINSHELWOOD (Glasgow) read a paper on

Four Cases of Congenital Word-Blindness in One Family.

Kussmaul in 1877 described an acquired aphasia wherein there was a "complete text-blindness, although the power of sight, intellect, and speech were intact." The patient saw words but could not read them. Pringle Morgan[2] first recorded a case of the congenital form.

Dr. C. J. THOMAS of the London County Council Medical Department (Education) called attention to the fact that the condition often affected several members of a family and might be hereditary. The cases he should describe were examples of this last type. Of 11 children of one family the eighth to eleventh could not learn to read. Although they were otherwise intelligent, in some of them their capacity in arithmetic was particularly good. One at the age of 18 years had become a football enthusiast and by much exertion he had learned to recognise many of the terms used in the sport, so that he could read them at sight, although he had the greatest difficulty in recognising short monosyllabic words in a child's primer. This case showed that the difficulty in learning could be overcome by persistent and persevering attention. It also suggested that individual teaching was required.

Mr. W. T. HOLMES SPICER (London) thought that cases of word-blindness might be overlooked when associated with errors of refraction. He had recently a case of this kind under his care; there was a high degree of mixed astigmatism, but the correction of this did not improve the capacity for reading, although the intelligence of the child was good.

Mr. J. ELLIOT SQUARE (Plymouth) detailed the case of a man who could never learn to read but yet was perfect in money matters, paying bills and obtaining change with accuracy.

Mr. STEPHENSON had seen a case of four affected in one family—three girls and one boy.

Mr. CYRIL H. WALKER (Bristol) remarked that in all these cases the disability seemed to be of about the same degree. There were no slight cases.

FRIDAY, AUGUST 2ND.

Mr. SPICER opened a discussion on

Vesicular Affections of the Cornea.

He said that the corneal epithelium was soft and delicate, exposed to injury and to dryness from evaporation, received nutrition through very indirect channels, and was only loosely attached to Bowman's membrane. It retained its clearness and health to old age, probably owing to the perfection of its sensitiveness. Sensation in the cornea, unlike that in the skin, was simple only and gave a pain reaction only to all harmful stimuli. The epithelium was easily detached in one or more of its layers or as a whole from Bowman's membrane. In reptiles which cast off their epidermis periodically the epithelium of the cornea was cast off too, and the periodic detachment of the epithelium in relapsing bullous keratitis might be a tissue memory of the time when periodic shedding of the surface was normal. Casting off of the epithelium as a whole was seen in various acute diseases, in panophthalmitis, purulent conjunctivitis, keratomalacia, neuro-paralytic keratitis, and others, and also after the use of cocaine and various drugs. Local detachments were also commonly met with. Examples were given of both general and partial exfoliations. The protective mechanism acted in two ways: by the pain which interference with the surface brought and by the influence which the healthy nerve had on nutrition, or its trophic influence. In normal eyes wide differences existed in the corneal pain reflex in individuals; where ulcers were found the pain reflex was often deficient; in one eye in which an ulcer was present with defective reflex the other eye frequently had a defective pain reflex too: such eyes were especially liable to suffer from ulcers. Partial or local defects of sensation in the cornea also occurred, leading to localised epithelial diseases. In herpes zoster of the fifth nerve there was a disease of the Gasserian ganglion leading to anæsthesia of the cornea and hence to liability to injury. In some cases instead of surface affections deep or interstitial keratitis, iritis, cyclitis, and diminished tension occurred—that was, in addition to the anæsthesia, some influence of an irritative kind or a cessation of normal influences passed outwards along the nerves leading to deep changes within the eye. If this were true of the main trunk of the ophthalmic nerve it might also be true of the smaller terminal branches; an inflammation of the nerve itself might set up irritation at its periphery. Some influence of this kind was probable because of the peculiar behaviour of some nerves of this group, among which were included febrile herpes, dendritic ulcers in their various forms, and filamentary keratitis. Febrile herpes in the skin was well known; it occurred about the lips, the eyelids, and other parts of the face; sometimes in facial attacks vesicles appeared on the cornea and sometimes they affected the cornea without the face. Examples were given of these associated affections, and a case was detailed where a man suffered an attack of acute herpes consequent on a dendritic ulcer of the cornea. Filamentary keratitis was considered to be a variety of the herpetic form, the filaments being formed by the twisting into a rope of shreds of torn bullæ by the action of the lids. Dendritic ulcers were of

[1] A. Hill Griffith: Ophthalmic Review, vol. iii.
[2] Brit. Med. Jour., November, 1896.

two forms: the one starting by a broad base from the limbus and extending as a fine stem across the cornea and giving off buds on each side; the other started as a central corneal spot from which spread branches in stellate fashion. Evidence of their herpetic nature was seen, sometimes in their earliest state, more frequently in the stellate than the proper dendritic form, when the site of the future ulcer was seen to be covered with ballooned epithelium not taking a stain, and when the epithelium was shed leaving the well-known shallow groove. At the ends of the ulcer there often appeared vesicles. The treatment of dendritic ulcers and of relapsing keratitis was discussed. In the early stages loose epithelium should be removed and atropine and bandages used to rest the eye. Cauterisation by carbolic, alcohol, or perchloride solution prevented relapses; the actual cautery was less successful. Dionine in strong solutions had been recommended and proved useful in a few cases. Mr. Spicer urged the free removal of the epithelium of the site down to the basement membrane. The general health should receive attention. Superficial punctata keratitis was discussed; it was not held to belong to this group but rather the effects of an acute catarrh of the whole conjunctiva.

Dr. J. CROPPER (Jerusalem) described a superficial spreading degenerative process in the corneal epithelium he had seen after trachoma had been treated by "brossage." Scraping the cornea or the application of antiseptics were of no avail, but the actual cautery had a useful effect.

Mr. RANSOM PICKARD (Exeter) said the recurrent bullous keratitis seen after scratches of the cornea so exactly reproduced the original lesions that the inclosure of micro-organisms was suggested. He thought the freer use of antiseptics was indicated in these injuries.

Mr. GRIFFITH asked if Mr. Spicer could throw any light on the process which produced the minute ulcers occurring in catarrhal conjunctivitis as a ring of dots near the margin of the cornea.

Mr. W. H. DE SILVA (Colombo) said he had seen atypical forms of keratitis dendritica which were of malarial origin, and which, unless the underlying condition was treated, were of a most intractable nature.

Mr. ROPER read a paper on

Extraction of Cataract without Iridectomy.

He stated that it was the traditional practice at the West of England Eye Infirmary to do the simple operation (without iridectomy) and to this he in the main adhered. The late Mr. Bankart was the unswerving champion of this operation and was not shaken in his opinion by the general practice of the operation with iridectomy by distinguished operators. In explaining the papers of statistics handed round Mr. Roper said that Mr. Bankart seldom corrected the astigmatism of the peasant class treated at the Eye Infirmary, deeming it better to give them spherical correction only. He had therefore not given the minute visual statistics of his work. The records showed, however, that of 150 consecutive cases 133, or 88·66 per cent., were simple extractions, and 17, or 11·33 per cent., were done with iridectomy. Of the 133 cases of simple extraction he had only six cases of prolapse of the iris, or 4·51 per cent. Of the cases in which V. was recorded 4 per cent. had V. = 0; 1·6 per cent. had V. less than $\frac{6}{60}$; the remaining 94·4 per cent. had V. from $\frac{6}{60}$ to $\frac{6}{6}$. Mr. Bankart thought so little of prolapse that probably no notice was taken of cases in which very slight prolapse caused the adhesion of the iris to the wound, but in his (Mr. Roper's statistics) all such cases were included. Mr. Roper's cases, 152 in number, showed 11 per cent. of prolapses, including those of minutest degree. Of the ten cases which resulted in V. = 0 four suppurated, two immediately, from infection at the operation, one at the tenth day, and one at the twelfth day; both the last had blepharitis before operation. One case followed hæmorrhage from the retina at the operation and another after hæmorrhage into the vitreous during a subsequent attack of bronchitis. In the one eye lost by reason of prolapsed iris there was an escape of fluid and muddy vitreous when excising the prolapse; it was probable that vision would not have been improved by operation in any case. The remainder were cases of "forlorn hope." The percentage of cases where no record of visual acuity was made seemed large but they were nearly all cases of either illiterate people or patients who were discharged convalescent and told to return for needling or spectacles but who failed to do so. From the notes of their cases it would appear that there were no surgical failures among them.

Mr. Roper advocated leaving a small ledge of cornea at the upper part of the incision as he believed it supported the iris and prevented prolapse. In treating prolapse he considered it neither necessary nor desirable always to excise it. His general plan was to excise the early prolapse, practically converting the operation into extraction with iridectomy. He was guided by the amount of irritation caused and by the state of the lower margin of the pupil as to whether he excised a prolapse of the third, fourth, or fifth day, or waited to deal later with the cicatrix; he did not attempt to excise a prolapse occurring later than the sixth day, but dissected away the cystoid scar when it had become sufficiently organised. He had seen no cases of irido-cyclitis or suppuration following prolapse of the iris.

Mr. C. DEVEREUX MARSHALL (London) said that the simple operation of extraction without iridectomy was now frequently performed at Moorfields. One or two surgeons scarcely ever did the combined operation and he often extracted through the intact pupil. He would never leave an iris that did not return to its proper position perfectly, as such usually prolapsed within a few hours or days. If the iris bulged he did an iridectomy before completing the operation, yet in spite of every care prolapse did occasionally occur. The advantage to the patient of the simple operation was the comparative freedom from the risk of the capsule being drawn up into the wound, for when an intact iris was replaced all capsular tags were set free from the wound.

Mr. HILL GRIFFITH commented on the visual acuity obtained in some of the cases. He said that he and his colleagues preferred the combined operation.

Mr. COULTER considered prolapse less likely to occur with peripheral corneal incisions than when the incision was well within the cornea.

Mr. E. BREWERTON (London) thought that Mr. Roper was hardly fair to himself in including as "prolapsed iris" cases where the iris was merely agglutinated to the back of the wound. The danger of a prolapse was in the frequent presence of capsular adhesions also. For this reason he thought that these mishaps were so frequent a source of sympathetic ophthalmia. He would like to ask Mr. Roper which operation he would choose if he had to operate for cataract on a patient who had only one eye.

Mr. J. ELLIOT SQUARE (Plymouth) thought the simple operation worth doing for cosmetic effect in some cases—e.g., a society lady with light-blue eyes would not unnaturally object to the odd effect of a large coloboma of the iris.

Mr. ROPER, replying to the discussion on his paper, emphasised the statement that during 25 years' work at the eye infirmary he had seen or heard of no case of sympathetic ophthalmia following the simple extraction with or without prolapse of the iris. As he had always had the run of the infirmary he must have heard of or seen any such case had it occurred. He had not burdened his paper with a statement of the rather obvious advantages of the simple operation. He would do an iridectomy before extraction for a person with a chronic cough or for a woman who was likely to be restless after operation, or if synechiæ were present. A post-operative iridectomy was indicated where the iris showed a strong tendency to prolapse or where it had been much bruised or its pigment stripped off in the course of the extraction. The chief criticisms of his methods had been advanced against his corneal incision as opposed to the evidently more general peripheral one and of his opinion that a prolapse need not always be excised. He could only say with regard to the latter that his experience had shown him that it was often sufficient to dissect off the cystoid cicatrix and that the eyes did perfectly well without the more dangerous procedure of opening up the wound and searching for the iris which could not always be seized. Astigmatism after operation was from 1 D. to 2 D., usually about 1·5 D., and almost invariably had an axis of 150° or 30° below the horizontal. Mr. Brewerton had asked him what he would do in the case of a person with but one eye. He had such a case four or five years ago and, with the courage of his convictions, did his usual operation. On the fourth night the patient had bad nightmare and her struggles with an imaginary foe caused a large prolapse which he excised at once. She left the infirmary with vision $\frac{6}{9}$ and was so recorded in the results before the meeting. About three weeks since she came up for new spectacles and her vision = $\frac{6}{9}$ every letter. He was certain that strain of some kind was the chief cause of prolapse.

Dr. THOMSON HENDERSON (Nottingham) read a paper on

The Pathogenesis of Glaucoma and the Rationale of its Treatment.

He believed the underlying predisposition to glaucoma existed in alteration of the pectinate ligament. Sclerosis of the fibrous tissue of the structure diminished the permeability of the channels and ultimately obstruction. The sclerosis was natural to all eyes but exaggerated in hypermetropia owing to the continued traction of the ciliary muscles. Features of importance were, the absorbent powers of the iris which was not to be looked upon merely as a light diaphragm; and the quality of the aqueous which was not a true secretion but an exudate dependent on arterial blood pressure. There was a fine balance between the production of aqueous and its absorption by the iris and escape through the pectinate ligament. Excitement increased the first; dilatation of the pupil closed the crypts of the iris and diminished the second; whilst the sclerosis of age prevented the third. When aqueous production was excessive and venous return was difficult, the iris became swollen, œdematous, and congested; and it was then that its root became applied to the pectinate ligament and glaucoma ensued. He looked upon acute glaucoma as essentially depending upon an acute iritic œdema for its determination. In chronic glaucoma he thought the iris never became adherent to the filtration angle, but that the slow increase of tension was consequent on the steadily advancing sclerosis of the pectinate ligament. Buphthalmos arose from failure of development of the pectinate ligament. Recognising the absorbent properties of the iris the value of mitotics was at once apparent, for in the contracted state the crypts of the iris were widely distended and its surface proportionately increased. The value of iridectomy arose from the peculiar nature of an iris wound after section, as he had recently pointed out no true cicatrix was ever formed, when examined years after operation the stump was as fresh as if it had been cut post mortem. Hence it followed that iridectomy opened up a permanent channel for drainage which was not influenced by the state of the pupil, and which could always be effectively produced so long as the iris tissue had not atrophied.

Mr. PARSONS said there was no doubt that the pectinate ligament was thickened and compressed in glaucoma, but it was doubtful if this was not a secondary rather than a primary phenomenon. He thought perhaps too much stress was laid upon the absorptive function of the iris by Mr. Henderson.

Mr. A. F. MACCALLAN (chief inspector of ophthalmic hospitals in Egypt) gave an account of

Four Years' Work with the Ophthalmic Hospitals in Egypt.

The work was started in 1903 by the gift of £41,000 by Sir Ernest Cassel. A scheme was recommended by the Director-General of the Department of Public Health on the lines of the "Ophthalmic Flying Columns" then existing in Russia. Mr. MacCallan took up duty in July of that year and had to organise a travelling hospital and train native doctors in ophthalmic surgery. He and his assistant made a working tour of many of the large towns of the Delta and so gained a knowledge of the conditions under which work would have to be done. The first encampment of the ophthalmic hospital consisted of ten or 12 large Indian tents at Menuf. Work began at 8 30 A.M. by visits to in-patients and operations; then came the examination of out-patients, an arduous task, as often 200 new cases came and of these 90 per cent. had trachoma and about one-third required operation. One day in each week no new cases were seen; the day was devoted to refractions, which were an increasing number. Each patient had a case-card prepared with full notes and was given a leaden disc stamped with the number of that card. A camp lasted about six months and then was removed elsewhere, not because there were no more patients to be seen in the one place but that the benefits of the hospital might be distributed. There were now two travelling hospitals at work, one in Upper Egypt and the other in Lower Egypt. There was ample work for a permanent hospital in each large town and for this provision was being made; one or more hospitals would be established each year so far as money permitted. It had been felt best to establish special hospitals and not add ophthalmic departments to general hospitals. In many general hospitals there was no room for the addition and the prospective eye patients were so numerous that they would have swamped the general patients and upset all arrangements. In one city where the travelling hospital stayed the people were so appreciative of its utility that they subscribed £5000 for the building of a permanent hospital. His staff now consisted of two English surgeons, four Egyptian surgeons, and a large staff of clerical and hospital attendants. The English surgeons' duties were to teach and to operate, they had no clerical work. The Egyptian surgeons were taken after graduation and trained for this work: their interest in the work, energy, and progress promised well; their number would be increased as hospitals were established. In all, 40,103 patients were examined at the hospitals and of these 7327 were treated either as in-patients or out-patients. 5846 operations (including the scraping trachomatous lids) were performed on 2649 patients. Cases of entropion were numerous, forming 8 per cent. There was much glaucoma, but cases were usually seen too late; in 1·7 per cent. there was absolute glaucoma. 4·9 per cent. of all people seen were blind in one or both eyes. In 1906 as many as 657 cases of cataract were seen and 225 were operated upon; a large number had severe trachoma and treatment for this was a first necessity; others had severely damaged corneæ. Mr. MacCallan gave some account of the operations which he found of greatest service, particularly in dealing with the numerous cases of entropion, and of their manner of treating trachoma. Generally, besides the direct relief of eye troubles the hospitals served a great purpose, that of teaching the fellahin the much neglected virtue of cleanliness, a point they secured by excluding all patients with dirty faces. Trachoma was rife; there were at least 6,000,000 of people infected at the present time. 51 per cent. of the pupils in the Government schools showed evidence of the disease. In 1904 he examined the boys in the school at Damietta; 56·9 per cent. showed evidence of trachoma; 9·7 per cent. had other eye affections; and 25·5 per cent. had gross corneal lesions seriously interfering with vision. It had been arranged that where permanent hospitals were established the medical officers should undertake daily inspection and treatment at the Government school; this arrangement would come into working at Tanta in October next. He hoped to be able to extend this plan to all Government schools.

Dr. CROPPER congratulated Mr. MacCallan on his work; he thought that no work done by the English in Egypt was more calculated to reconcile the people to our rule than such beneficence as this.

Dr. DE SILVA gave an account of

Lepra Ophthalmica in Ceylon.

The asylum had been in existence over 200 years and now accommodated 500 cases. Of these 101 showed signs of eye disease. There were 23 cases diagnosed as lepra tuberculosa, 33 cases of lepra anæsthetica, and 45 of mixed forms. In lepra tuberculosa episcleral growths were the commonest eye affection. The initial stage was hyperæmia, then an infiltration, and a nodule resembling a pinguecula. The growth very slowly extended to the cornea, first affecting the superficial layers, then the deeper; the iris became displaced towards the lesion. No fundus troubles were found. Vision remained surprisingly good. The average duration of lepra tuberculosa was nine years and the average age of the patients was 31 years. In lepra anæsthetica the disease progressed in a much slower fashion; the average duration was 14 years, also the average age was higher, being 42 years. Paresis of the facial nerve produced lagophthalmia, and this, if neglected, was followed by total loss of the eye. When lagophthalmia was prevented the vision remained normal, save in cases where anæsthesia of the conjunctiva and lids was observed. The mixed cases seemed most often to have begun with the anæsthetic form, and from neglect to have subsequently developed nodules. He was able to divide the group into 30 showing nodules, 15 of anæsthetic type. He concluded that lepra ophthalmica in Ceylon was most commonly observed in the nodular form. Vision remained effective for a remarkable period with severe lesions. The fundus was rarely involved. Fields of vision and colour perception were not affected. Tension was only altered secondarily. In cases where vision failed it appeared that early and judicious surgical interference would have preserved useful vision for a longer period. Lepra anæsthetica only affected the eye secondarily by fostering traumatic keratitis.

PSYCHOLOGICAL MEDICINE.

FRIDAY, AUGUST 2ND.

Dr. J. F. WOODS (London) opened the discussion on

Hypnotism

in a paper in which he stated that his experience of

hypnotism as a therapeutic agent in cases of insanity dated from 1892, when he was acting as medical superintendent at Hoxton Asylum. He had now treated 2076 cases in all, of which number he had classified 881 as mental cases, including neurasthenia, hysteria, bad temper, &c., most of which were borderland cases, in which this form of treatment was most efficacious. His figures were as follows:—

Mental and Borderland Cases.

—	Number of cases treated.	Recovered.	Improved.	No apparent change.
Neurasthenia or borderland cases	666	597	41	28
Melancholia	118	80	19	19
Delusions	2	2	—	—
Mania	44	20	16	8
Night terrors	6	5	1	—
Stage fright	28	23	5	—
Phobias	5	4	1	—
Delirium tremens	1	1	—	—
Hysteria	7	5	1	1
Obsession	2	2	—	—
Bad temper	2	2	—	—
Totals	881	741	84	56

He illustrated his paper with notes on three cases of melancholia and one case of puerperal mania that recovered under the influence of hypnotic treatment. He mentioned the different methods used in the operation for inducing hypnosis, having the primary object of engaging the attention and fatiguing the visual apparatus. Of late years most physicians had found that it was not always necessary to induce complete hypnosis to render suggestion effective. A great many of his patients were susceptible to suggestion if he merely sat by them and obtained their attention. It was a common practice with him to place one hand on the patient's epigastrium while gently stroking with the other the patient's head and then engaging him in conversation with the object of securing his full confidence. He then got the patient to relax his muscles to the utmost. He insisted on complete silence and the suggestion was made at the psychological moment. There must be no kind of uncertainty about the manner of making the suggestion, it must be forcible and emphatic. He probably never treated two patients exactly alike, but he felt the procedure was an instinctive one. He stated that he could not tell at once whether a patient was susceptible or not and that many responded after repeated trials. Dr. Woods then gave a detailed list of all the cases treated, non-mental as well as mental, the list including, amongst others, epilepsy (12 recoveries and 22 improved out of a total number of 50), hay fever (five cases, all recovered), writers' cramp (ten cases, six recoveries), headache (214 cases, 186 recoveries), dyspepsia (65 cases, 59 recoveries), and neuritis (41 cases, 27 recoveries).

The PRESIDENT of the section (Dr. T. CLAYE SHAW of London) who followed reminded those present that not long ago hypnotism was very largely under suspicion but that nowadays it was becoming a recognised method of treatment and that in the light of results obtained by responsible physicians like Dr. Wood, who stated that cases of epilepsy had recovered under hypnotic treatment, it appeared certain that some persons suffering from diseases which involved organic bodily changes recovered under the treatment.

Dr. E. S. PASMORE (Croydon), Dr. A. T. SCHOFIELD (London), and Dr. W. F. MENZIES (Cheddleton) having questioned the author as to the nature of the cases and the duration of the "cures,"

Dr. D. YELLOWLEES (Glasgow) expressed his doubt on both these points with regard to Dr. Wood's results. He believed, however, that hypnotism was valuable at times in relieving pain, even in cases of organic disease, and instanced in this relation some cases of locomotor ataxia in which he had found hypnotic suggestion alleviate the more painful symptoms.

Dr. G. M. ROBERTSON (Larbert) gave the results of his 20 years' experience of hypnotism, an experience which had resulted in a gradual cooling of his original enthusiasm for the treatment. The favourable results of treatment bore, of course, only on the mental side of the subjects, such mental affections being present both in functional and organic disorders, and were in his experience not lasting. He had found it very difficult to induce hypnosis in insane people and particularly in melancholics.

The discussion was closed by the PRESIDENT of the section who stated that he could not but come to the conclusion that states of mind had an enormous influence on states of the body.

Dr. SCHOFIELD contributed a paper upon

The Teaching of Psychology in Medical Schools,

in the course of which he animadverted upon the "extraordinary fact" that the subject of psychology—using the term in its broad sense of the study of mind, normal and abnormal—had in England "hardly a teacher, a student, or a text-book," and pleaded for the curtailment of the ordinary medical curriculum in certain directions—e.g., in materia medica, minute anatomy, and so on—in order to make room for the study of weightier matters concerned more nearly with life and death, health and disease, such study to include "normal psychology, surgical psychology, the psychology of etiology, psycho-therapeutics, the psychology of drugs, applied mental therapeutics, the psychology of the patient (body, soul, and spirit), and the psychology of the physician himself."

Dr. SCHOFIELD'S paper did not evoke discussion, but Dr. F. W. EDRIDGE-GREEN (Hendon) and the PRESIDENT of the section both agreed that it would be well if more attention were given to general psychology as a necessary preliminary to medical psychology.

Dr. PASMORE (medical superintendent of Croydon Mental Hospital) exhibited and explained his "flag diagram" for recording the family histories of patients.

The meetings of the section then closed.

DENTAL SURGERY.

FRIDAY, AUGUST 2ND.

Mr. F. J. BENNETT (London) read a paper entitled

"*Some Anatomical Results of Efficient Mastication.*"

He said that as the signs of attrition had become less in advancing civilisation so defects of the jaws and teeth appeared to have increased. One of the most common results of efficient mastication was a well-shaped and large arch of the jaw. The cause of the attrition often observed in old skulls was apparently related to the oblique manner in which the lower teeth were erupted; this resulted in unequal wear of the inner and outer cusps of the molars, the obliquity and the wearing of the internal cusps assisting in spreading the teeth outwards, and enlarging the dental arch; not only this but the incisors tended gradually to come edge to edge. Attrition was apparently too late a development in the human subject to allow of it being fully fixed to have become inherited. In many cases, however, a modification of the shape of the teeth had occurred, the teeth had become broader and flatter and the fissures less well marked. When the teeth subjected to attrition, due solely to vigorous muscular action, were compared with the teeth of the present day showing every mark of deterioration the question of the possibility of improvement of the jaw muscles by appropriate exercises at once suggested itself. Mr. Bennett then went on to describe a curious parasitic group which he had found attacking the teeth in certain skulls which had been dug up in Ireland. The growth, a species of mycelium, had grown down throughout the denture of the teeth in question, apparently being a purely post-mortem phenomenon. Slides were shown exhibiting the appearances found.

Mr. J. F. COLYER (London), Mr. K. W. GOADBY (London), and Mr. J. G. TURNER (London) discussed the paper, and Mr. BENNETT replied briefly.

Mr. COLYER read a paper on

Irregularities of the Teeth in Animals.

He said that no work of the dental practitioner required more thought and reflection than the treatment of irregularities and it was only somewhat recently that attention had been directed to the origin and etiology of the various irregularities often empirically treated. He had recently directed his attention to the irregularities of animals' teeth with a view to throwing some light on the etiology of the human types of malposition, &c., and although little had

been accomplished as yet, sufficient knowledge had been gained to show that the irregularities of teeth in animals probably fell into several well-defined groups. Among these groups Mr. Colyer described instances in animals of irregularities due to persistence of deciduous teeth commonest in the Ungulata, and in the maxillæ more frequently than the mandible. Crowded teeth, also associated with the persistence of deciduous teeth, or the presence of supernumary teeth were not uncommon in the small carnivora and in the Equidæ. Crowding was also seen at times in the incisor region among monkeys. In the Equidæ crowding of the incisors, especially in the mandible, less commonly in the maxilla, was often present without the presence of supernumerary or retained deciduous teeth. In one instance the deformity was apparently due to a distinct narrowing of the mandible in the incisor region. Crowding of the premolars was occasionally seen in the carnivora, especially the Canidæ; a specimen of a brown bear (ursus arctos) showing well-marked crowding was exhibited. Mr. Colyer pointed out that the teeth did not vary in size proportionately to the variation in the length of the muzzle, the short muzzled bears more often showing crowding than long muzzled ones. Crowding in the premolar region was uncommon in the Ungulata and in 500 specimens only two examples were met with. Want of space in the premolar region was not so uncommon but the teeth underwent a certain amount of compensatory absorption of the cemental tissue of the crowns allowing the teeth to retain their natural position. Undue prominence of the superior teeth.—A condition similar to superior protrusion of the human subject was not uncommon in horses and was known as "parrot mouth." The etiology of this question required study, especially in relation to breed. The condition was not common in other animals; an example of "parrot mouth" in a fox was shown. Complete displacement of teeth.—Premolar displacement appeared to be a well defined irregularity in the animal kingdom. Examples of this deformity were shown in a wallaby (macropus mesteisis), a monkey (cercopithecus patas), a baboon (cynocephalus babuin), and a case of complete displacement of an incisor in cercopithecus mona and in a bear. The effect of rickets upon the position of the teeth was also touched upon. It was, Mr. Colyer said, well shown in lions and tigers. The incisors, especially the outermost ones, were generally considerably misplaced and the fourth premolar was forced outwards. A thickening of the tooth sacs described by Mr. Bland-Sutton might be the cause of this.

The PRESIDENT of the section (Mr. J. MCKNO ACKLAND) thanked Mr. Colyer for his interesting paper and asked what percentage of animals in various classes showed irregularities, as it was possible only the pathological specimens coming to light gave a distorted idea of the occurrence of irregularities.

Mr. BENNETT, Mr. A. W. BAKER (Dublin), Mr. J. H. GIBBS (Edinburgh), and Mr. TURNER discussed the paper.

Mr. COLYER, in his reply, made an appeal to the veterinary surgeons to inquire into the irregularities of the teeth of animals, as a large amount of valuable information on irregularities probably affecting the deformities of human jaws might thereby be determined.

In the absence of Mr. H. A. T. FAIRBANK (London) one of the honorary secretaries read his paper on

Sarcomata of the Jaws.

For the purposes of this paper Mr. Fairbank had collected 140 cases of sarcoma of the jaws, no case being included in the series which had not been determined microscopically to belong to the sarcomata. Of the 140 cases, 81 were females and 50 males; in the remainder the sex was not stated. Sarcomata most frequently attacked the jaws before the twentieth year of age, but also occurred at all ages, fibro-sarcomata occurring at somewhat later ages than the others, endotheliomata and "sarcomatous compositite embroyoplastic odontonus" (Eve) occurred still later. In three cases of endothelioma the ages were 45, 52, and 62 years. Of all the varieties of sarcoma in the series the youngest case, occurring at one month, was melanotic sarcoma, the oldest case, one of myeloma, was 72 years of age. 41 per cent. were under 20 years of age. Many of the tumours had started in close relation to teeth, but only in 10 out of the 140 was any mention made of previous pyorrhœa or caries. In the series of cases under discussion the varieties were as follows: myeloi1, 57 cases; round-celled, 17; spindle-celled, 14; fibro, 14; mixed celled, 12; embroyoplastic odontonus, 8; endothelioma, 6; melanotic, 4; chondro, 4; myxo, 2; and alveolar, 2. In five cases, all myelomata, two distinct tumours were present. In three cases a benign tumour had been previously removed from other parts of the mouth. There was no difference in the incidence on the two jaws; in the mandible the left side was twice as often affected as the right. In cases over 40 years of age the upper jaw was twice as often affected as the lower. Myeloid tumours grew more like a cyst or innocent tumour, they rarely appeared to fungate through the periosteum to the outer side of the jaw. They might cause the antrum to bulge without invading its walls and might be shelled out of this cavity. Periosteal tumours spread with equal rapidity in all directions over the surface of the bone and extended down the sockets of the teeth. They also invaded the muscles, especially their bony insertions. The inferior dental canal was also a channel along which the growth often spread. The myelomata were the least malignant, the round or spindle-celled were the most malignant, and those tending to fibrosis held an intermediate position; the last-named often, however, take on rapid growth, especially after surgical interference or tooth extraction. Glandular infection was rare. Although enlarged glands in the vicinity, especially when the maxilla was the seat of the growth, were quite common, yet they never showed secondary deposits. Before operation the variety of growth should be determined, as myeloma rarely called for wide removal or excision of the whole or greater part of the jaw upon which it was growing. It was not advisable to make an exploratory incision. With the exception of myeloid growths the results of operation for the complete removal of those tumours was far from good.

In the absence of the reader of the paper no discussion took place.

Mr. BENNETT proposed a cordial vote of thanks to the President of the section, which was seconded by Mr. COLYER, and the proceedings then terminated.

TROPICAL DISEASES.

THURSDAY, AUGUST 1ST.

Sir RICHARD HAVELOCK CHARLES, K.C.V.O., M.D.R.U.I., I.M.S. (retired), opened the discussion on

Diabetes in the Tropics

by a paper in which he stated that, although diabetes in the tropics differed in no essential degree from that met with in Western Europe, there were many points of interest in connexion with locality, diet, race, and customs which rendered a discussion of the subject useful and instructive. During recent years there had been a marked increase of the prevalence of diabetes among the Hindu race. Dyspepsia was an early and constant feature of diabetes in India; so much was this the case that it might be summed up by saying there was no diabetes without indigestion—its forerunner. In Bengal it was the indolent and rich and the overworked medical and legal practitioners amongst whom the disease was found. All of these, although from different reasons, were liable to suffer from digestive disturbances. The *remote* causes of diabetes in Bengal might be attributed to the depressing climate, defective hygienic conditions, the strenuous life of cities, the severe struggle for life in altered circumstances, rich living, and too great excess of carbohydrates in the food. Amongst the more *immediate* causes excess of venery held an important place, and mental or nervous strain, fright or bereavements, in fact, any state in which the nervous system was overtaxed, be it in the pursuit of knowledge, business, or pleasure, might prove the direct incentive to the onset of the disease. A toxic agent or other determining cause might supervene on the condition of body set up by these taxes on strength and provoke the disease. There was evidence to show that no fewer than 10 per cent. of Bengalis of the better classes suffered from diabetes. Sir Havelock Charles dealt with the life insurance of diabetics and said that sugar in the urine should always be considered a great, if not an insurmountable, detriment to the acceptance of a life for insurance. Carbuncle, gangrene, and cellulitis were the commonest complications of diabetes in India, and he recommended early excision of the carbuncle, or, if that was impossible, serum injection and palliative local treatment; strong antiseptic measures were to be condemned. In regard to gangrene it was unwise to wait for the line of demarcation, especially if arterio-sclerosis was marked; the amputation should be performed above the origin of all the muscles inserted into the gangrenous part.

Dr. R. K. CHUNDER BOSE, Bahadur, C.I.E. (Calcutta), in his paper on

Diabetes Mellitus,

stated that with increased prosperity in Bengal diabetes had increased of late years. As much as about 10 per cent. of Bengali gentlemen suffered from it. He considered the liver, the gastro-intestinal tract, and the nervous centres were at fault when this disease occurred. The Hindus were more susceptible to diabetes than were Mahomedans or Christians in Bengal. There seemed some evidence that diabetes was hereditary and husband and wife were at times found afflicted with the disease. Amongst the symptoms and signs enumerated the exaggeration and the absence of knee-jerk had both been noticed. Males were more susceptible to the disease than females in the proportion of about 3 to 1. The specific gravity of urine containing sugar might be very high or very low. A low specific gravity did not necessarily mean arrest of the disease and in chronic cases the sudden disappearance of sugar bespoke approaching serious complications. Dyspepsia and diabetes seemed intimately linked together. Dr. Bose observed that whooping cough was sometimes associated with diabetes. Angina pectoris was by no means a rare complication of diabetes in India. Influenza was a serious complication in diabetes. Lesions of the skin, eye, and the peripheral nerves, dry gangrene, headache, and carbuncle were all liable to occur in India as in Europe. Of remedies jambul was stated to reduce the specific gravity and the quantity of sugar, but its prolonged use was followed by anorexia and gastric troubles.

Dr. R. DEVENDRANATH ROY, Bahadur (Calcutta) stated in his paper on

Diabetes in India

that the number of people belonging to the professions of law and medicine and in persons engaged in clerical work diabetes had undoubtedly increased to a great extent in late years. He gave an interesting account of what the ancient Hindu physicians said about the disease, and although there was nothing of pathological interest in the records of their observations it was amazing to find how accurate were their clinical accounts of the disease. They distinguished between pramcha or madha-meha (sweet discharge) and soma-roga or diabetes insipidus (water disease). The causes these ancient physicians regarded as provocative of diabetes were sexual excesses, grief, hard manual labour, mental worry, lassitude, indiscretion in diet, and dyspepsia. The complications they mentioned were inflammations of various kinds, skin eruptions, furuncular eruptions with formations of pus. The diet recommended by these old observers consisted of the following articles: new rice, curd, flesh of animals living in swamps, fish, wines, vinegar, oils, onions, barley, flour of old wheat, dâl of several kinds, sesamum seeds, meat juice, old honey, whey, sparrows, pigeons, rabbits, snipe, peacock, and venison. Restriction was placed upon drinking milk and eating fish and meat at the same meal, sugar-cane and its preparations, excess of acid and salt. Jambul, seeds and roots of lotus, dates, bitters, and astringents were the therapeutical agents employed in the treatment of diabetes. Dr. Roy stated that the specific gravity of the urine of the Bengalis was lower than that of Europeans living alongside of them. He laid stress upon the general prevalence of dyspepsia amongst diabetics.

Dr. SATYASARAH CHAKRAVARTI (Calcutta) contributed a paper entitled

"*Notes on Diabetes Mellitus.*"

He stated that diabetes was essentially a disease of town life and was rarely met with in villages. In Calcutta the total mortality from diabetes and its complications was declared to be about 10 per cent. of the total mortality. The liability to the disease seemed to be increasing amongst Bengalis in Calcutta of late years, and especially amongst the educated Bengalis. He believed the relative immunity enjoyed by the working classes as compared with persons higher in the social scale was due to their freedom from the nervous strain inseparable from the anxieties attendant upon persons pursuing intellectual occupations in large towns. These inevitable worries affected the digestive powers as well as the assimilation of food and so predisposed to diabetes. Hindus were more often attacked than were Mahomedans, and of the Hindus those who took a mixed diet and were given to the use of alcohol were more liable to diabetes than were vegetarians like the Jains and Marwaris. The Jews were subject to the disease to a larger extent than were Europeans. This difference of incidence, however, seemed to vanish in the army where both the European and native troops lived under more nearly similar conditions. During 1905, for instance, there were only eight cases amongst 71,000 British troops and 23 cases only amongst 198,000 men of the native army. As regards heredity diabetes insipidus seemed more likely to be handed down than diabetes mellitus.

Dr. C. L. BOSE (Bengal) sent a paper entitled

"*Some Observations on Diabetes in India.*"

These observations were based upon 325 cases of diabetes. The average age of patients was between 40 and 50 years; the youngest patient was 18 years of age, although a child aged six years had been found by a medical friend to be suffering from diabetes. Men suffered more frequently than did women, and amongst women, as amongst men, those belonging to the higher ranks of society suffered most. Diabetes was essentially a disease of those engaged in sedentary occupations. The disease sometimes ran in families and continued from one generation to another. The incidence according to race Dr. Bose found to be as follows: Hindus, 76·92 per cent.; Mahomedans, 8·0; Europeans, 5·54; Jews and Armenians, 4·0; Eurasians, 2·47; Jains, 2·15; native Christians, 0·62; and Parsis, 0·30 per cent. The possibility of diabetes being contagious must not be lost sight of. Of the 325 cases oxalate of lime was detected in 26·50 per cent., and uric acid diathesis occurred in 14·70 per cent. Albuminuria, pulmonary tuberculosis, carbuncle, cellulitis, gangrene, and cataract were the more common complications observed by Dr. Bose.

Dr. F. M. SANDWITH (London), from experience gained in Egypt, stated that diabetes was one of the common diseases met with amongst Egyptians. Their diet consisted chiefly of bread and vegetables, whilst sugar was consumed freely. The necropsies of cases met with in Egypt showed neither atrophy nor fibrosis of the pancreas. Dr. Sandwith inoculated four diabetic patients suffering from tuberculous lung trouble, but in no case did reaction to injection of Koch's tuberculin occur. He considered it inadvisable to allow diabetic patients to take long journeys. He had seen three visitors who had been recommended to winter in Egypt die within a few days of their arrival in that country. Treatment should consist of first lessening the quantity of sugar in the urine by strict diet and then opium, 1 grain thrice daily. Aspirin in from 5 to 15 grains thrice daily was efficient in diabetes provided there was no gastric or kidney disturbance. The Egyptians used a pill of ox-gall and the seeds of Trigonella fœnum græcum—the "helba" of Egypt. Dr. Sandwith tried this treatment but did not find it beneficial.

Lieutenant-Colonel G. M. J. GILES, I.M.S. (retired), whose experience of diabetes was gathered chiefly in the North-west Provinces of India, stated that the disease was not more common in that locality than in Europe and that the frequency of cases of diabetes amongst Bengalis in the North-west Provinces was in excess of other residents there. Lieutenant-Colonel Giles pointed out that in reference to the cause there was one point in which the Bengali differed from all other civilised tropical inhabitants, inasmuch as he was the only man who went about in a tropical sun with a closely cropped bare head, added to which his complexion was not dark enough to do so with impunity.

Dr. H. MARCUS FERNANDO (Ceylon) stated that diabetes was very common amongst the educated classes of natives in Ceylon and was a disease due not to climatic or to racial conditions but to conditions of diet and habits of life. Europeans in Ceylon were no more prone to the disease than in Britain, whereas amongst the natives, professional men, and merchants, diabetes was quite common. In Ceylon the disease prevailed more amongst the Hindus than amongst Mahomedans and Singhalese, the last mentioned being the least affected. The causes assignable were (1) carbohydrate diet; (2) sedentary life; and (3) continuous application to work and no holidays. The disease seemed to be hereditary, to effect the overfed and obese, and to run in Ceylon the same course as they observed in Europe. Dyspepsia did not seem an early feature of the disease nor did the exposure of the head to the sun seem to play a prominent part in the etiology of the disease, for the Tamils went about with their heads bare, yet diabetes amongst them was very rare.

Mr. W. H. DE SILVA (Ceylon) said that ocular symptoms in diabetes in Ceylon corresponded closely with those met with in Europe. Diabetics were undoubtedly more prone to cataract, yet when the patient improved under treatment

extraction might be successfully performed. It was very difficult to diet people suffering from diabetes for whom the staple food was rice, and it would be worth closer investigation to ascertain whether any of the cereals recommended by the earlier Indian medical writers, such as charaka, would prove a useful substitute for rice as a diabetic diet.

Major A. H. NOTT, I.M.S., from experience gained in Bengal stated that the influence of dyspepsia in the causation of diabetes was a very doubtful point. Carbuncle, gangrene, and coma were common features of the disease in Bengal. Owing to the frequency of diabetes in Bengal the question of life insurance came frequently before medical men in practice there. Major Nott considered that with established diabetes, however well the man might appear otherwise, it was the duty of the medical man to refuse the candidate for life insurance.

Sir PATRICK MANSON said that in China diabetes was rare, although the Chinese were rice-eaters and were frequently overfed and overworked, and therefore subject to most of the conditions which had been stated to be provocative of the disease. The endemicity of diabetes in Bengal was interesting. It might be, however, that diabetes, which had been for so long attributed to food, exposure, nervous influences, heredity, and so forth, might, like other ailments with similar history, come to be proved to be due to a specific organism. Leprosy, tuberculosis, sleeping sickness, and several other diseases which occurred to one, had each in turn been ascribed to general causes, whereas they now knew that a specific organism was found to be the etiological agent in each. The diabetes of Bengal would seem also to be probably one of the germ diseases.

Dr. LOUIS W. SAMBON (London) stated that diabetes was common in Southern Europe. Glycosuria was a disease not only of man but of animals. The resemblance of diabetes to other ailments, in its clinical history and its geographical distribution, which had been shown to be due to infection by an organism, indicated a similar etiology for diabetes.

Professor HANS ZIEMANN (Cameroons) stated that the negroes of Lower Guinea very rarely suffered from diabetes, although their food consisted mainly of vegetables and bananas. Rice was seldom eaten in Lower Guinea. Exposure of the head to the sun did not seem to influence the onset of the disease in West Africa.

Major G. T. BIRDWOOD, I.M.S., mentioned that the fact of husband and wife developing the disease was a possible point in support of the germ theory of the causation of diabetes. Diabetics ought not to be accepted for life assurance policies. Carbuncles in diabetes ought to be widely and deeply excised and pure carbolic acid applied to the wound.

Mr. J. M. MALLICK (Calcutta) gave an account of his experiences of diabetes from a clinical aspect. He stated that urea eliminated by natives of India was much less in quantity than in Europeans in Europe, the difference approximating to half the quantity only. The cause was no doubt due to their food being poorer in nitrogenous material and to their deficient musculature as well as to the comparatively less active life. Muscular exercise taken regularly and continuously had a highly beneficial effect on diabetics, showing that diabetes was as much of a glycolytic as a glycogenic origin.

Mr. J. B. CHRISTOPHERSON (Sudan) said that glycosuria in the Egyptian Sudan was very rare. During a five years' experience he had only seen the disease once in an Arab. He could not believe that exposure to the sun could influence the disease as the Sudanese negroes went almost with shaved and unprotected heads.

Dr. P. J. CAMMIDGE (London) referred to the relation of the pancreas to diabetes; it seemed highly probable that the islands of Langerhans were in some way intimately associated with sugar metabolism. The lesion of this part of the pancreas might arise either by extension from the duodenum or by way of the blood-vessels. Arterio-sclerosis was a frequent concomitant of diabetes, and no doubt this condition was responsible for the albuminuria which occurred in the later stages of some diabetics.

Dr. W. CARNEGIE BROWN (London) said from experience gained in the Straits Settlements diabetes was prevalent amongst the wealthier sections of the native community, especially amongst those who were engaged in occupations involving much mental activity. He had not seen diabetes amongst Chinese coolies but frequently amongst the better off Chinamen. He recommended early and complete excision of the carbuncle which was so frequent an accompaniment of diabetes. In Dr. Carnegie Brown's opinion diabetes would seem to be an endogenous disorder of metabolism. Pancreatic remedies for diabetes, although to a certain extent haphazard, had proved wonderfully successful, both pancreatic substance and trypsin being valuable.

Mr. JAMES CANTLIE (the President of the section) said that diabetes was very common amongst Chinese who had taken to European food and wines; Jews he had found to be frequent sufferers from diabetes. There seemed sufficient evidence now to prove that any race of people unaccustomed to the food of western Europe who suddenly changed their diet or added to their diet meat, sugar, and wines were liable to develop diabetes. He had found sugar present in the urine in so many cases of fractured ribs on the lower part of the right chest wall that he was induced to attribute the condition to suspension of the natural movements of the ribs and diaphragm on that side causing abeyance of the hepatic functions.

Sir HAVELOCK CHARLES, in reply to the criticisms of the various speakers, stated that he agreed with the late Colonel Crombie in the belief that diabetes was the gout of the Bengali.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 22nd, 1829

ADULTERATION OF BREAD.

WE have received several letters on this subject, but want of room renders it impossible for us to insert a tenth of them One correspondent proposes, as the best means of checking the use of alum in the manufacture of bread, that government should impose a heavy duty on that article. He hands us the following as the "formula of the London bakers:"—Flour, 375 lbs.; potatos, 15 lbs.; salt, 4 lbs.; alum, 1 lb.; according to which, every quartern loaf contains a drachm of alum; thus, at the rate of one pound of bread a day, each consumer swallows 105 grains of alum a week. "This," he adds, "is no other than poisoning by slow degrees, and though the symptoms, languor, headache, constipation, &c., may not be noticed after a certain time, it undoubtedly lays the foundation for constitutional disease in thousands."

Another correspondent considers the baker to be less blameable than the public, whose foolish taste it is to prefer "the bread that is *whitest*." "It is a very common thing," observes Philo-panis, "for both mistresses and maids to exclaim, 'Lord, baker, how brown your bread is to-day!' The latter, accordingly, puts alum into his loaves, as apothecaries put colouring matter into saline draughts, and lump sugar into powders, to humour the palates of a *discerning* public. I can assure 'Panis,' (he adds) that if home-made bread would satisfy the people, the baker would most gladly produce it; it would release him from the never-ceasing anxiety that he now feels for the 'beauty' of his bread, as well as from much of the demoralising night-work occasioned by the present system of bread-making. To please his customers, it is not enough that the bread be sweet, light, well-baked, and substantial, it must be white, flaky, and silky in the crumb, qualities alone resulting from art and labour during a process of sixteen hours. Spoiled, however, as the bakers are by this white-bread craving of the public, there is much bread sold in London that has not a particle of alum in it; but then the price is high, for it is made of the best flour. Most people choose a *cheap* loaf; the cheap loaf is of course made of cheap flour, which, to produce a white and firm loaf, must have a large dose of alum mixed with it." After condemning as very irrational the unqualified terms in which the London bread is deprecated, he concludes, by observing, that "alum is sometimes of great benefit in the preparation of bread, and laws to prevent its use would be about as wise as—'Whereas divers men and women become beasts by drinking excessively of wine, porter, and spirits, and bring themselves prematurely to the grave, it is therefore enacted, that no person or persons shall ferment, or distil, or make any of the said deleterious or unwholesome articles, under a penalty of so and so.'"

THE LANCET.

LONDON: SATURDAY, AUGUST 24, 1907.

The Plague in India: The King's Message.

No people in the world are moved more readily by kindly feelings displayed towards them than are the people of India. It is because of this that we venture to say that the message concerning plague which His Majesty the KING-EMPEROR has recently addressed through his Viceroy to his Indian subjects will not only be received with profound satisfaction and gratitude throughout our Eastern Empire but will also exercise a potent influence on the success of future preventive measures. KING EDWARD expresses his heartfelt sympathy with the people of India in their sufferings, and he makes known the deep emotion he feels when thinking of the misery that has been borne with such silent patience in all those stricken homes. He adds that it is his earnest hope and prayer that the further measures now being prepared may be crowned with merciful success. The message will bring fresh hope and courage to those who have suffered so long, and who may be excused if they have now fallen into a state of despair; it will encourage all those who, with inadequate means at their disposal, have nobly striven to do their best to combat this scourge; it will be an impetus to further exertions; and it will arouse the Government of India to a quickened sense of responsibility and of the importance and urgency of doing everything in their power to check the ravages of plague.

That such a stimulus may be needed is evident from the fact that it has taken two years for the Government of India to consider the proposals put forward in the Memorandum on Plague which was presented by the Royal College of Physicians of London to Mr. BRODRICK at a deputation received on July 24th, 1905—since which time 1,500,000 people at least have died from plague in India. Almost coincident with the publication of the KING'S letter in the daily press the official correspondence regarding the measures being taken in India for the prevention of the plague was presented to both Houses of Parliament, the correspondence having its origin in the Memorandum of the Royal College of Physicians of London. It may be remembered that the scheme formulated by a committee of the College provided for a special medical and sanitary organisation which should deal with plague in selected localities. The staff of this service, it was suggested, should consist of officers of the Indian Medical Service and physicians brought out from England, having under their control male and female native medical assistants—the subordinate staff to be gradually increased in numbers and trained to greater responsibilities. The whole service, it was proposed, should work under the direction of a special head-quarters department and be divided into three sections: (1) an intelligence branch; (2) a sanitary branch working at practical measures on the scene of an outbreak; and (3) a bacteriological branch. The scheme was submitted by Mr. BRODRICK on August 18th, 1905, to the Government of India and the views of that Government were invited. These views have now crystallised in the form of a Blue-book which contains some apology for the extraordinary delay in procedure. The memorandum of the College was received, the Government says, at a critical time in the history of plague administration when all suggestions were most welcome, but, unfortunately, it did not appear to contain anything with which the Government was unacquainted, while it revealed a lack of knowledge on the part of the signatories in respect of plague administration in India. With regard to the innovations in administration suggested by the memorandum, replies were deferred until the views of the various local administrations of India could be obtained. Accordingly the local governments were consulted in May, 1906, and the letter covering their replies, and forwarding them for Mr. MORLEY'S information, is dated May, 1907, although most of the local governments appear to have been prompt in their replies. The net result of the local views is that suitable organisations for coping with the epidemic of plague in India already exist, although the executive may call for strengthening, while the general sanitary service needs development. The Government of India, informed by the opinions of the local governments, accordingly decides that in measures for the prevention of plague trust must be placed, *at any rate for the present*, upon improved sanitation in towns and upon the coöperation of the people in such measures as the evacuation of villages and the destruction of rats. The Government of India sees no virtue in the memorandum of the Royal College of Physicians of London.

To the Government of India Mr. MORLEY has made a significant reply, for while recognising the admission that the general sanitary service of India needs development, he asks for the specific proposals of the Government in this direction, noting that the measures now relied upon are avowedly only temporary. He recalls the fact that plague has been fatally active in India over 11 years, pointing out "that the number of victims exceed five and a quarter millions, that its virulence is unabated and its progress uncontrolled," circumstances which he considers "necessarily give rise to doubts as to whether everything that can be done has been done by the responsible authority, and whether the last word of medical science and administrative skill has really been said." The importance of the attitude of the Government of India to the people in regard to preventive measures has not escaped the attention of Mr. MORLEY and we are glad to see him so decided on what that attitude should be. The view that preventive measures depend for their success upon the coöperation of the people is interpreted by Mr. MORLEY in a very different manner from that which has governed action in India. It is accepted by him as merely defining the conditions of success and not as a reason for abdicating responsibility. Popular sentiment does not remove the obligations which still rest on the Government to endeavour to improve the quality of hygienic measures and to win acceptance for them by skilled

and considerate administration. This pronouncement is a most important one, for it strikes at the root of a policy which has been pursued too long in India and which has only been followed by disaster—viz., the relaxation of effort because the people do not heartily coöperate. It is a policy that is evidently difficult to get rid of, but it embodies a most mischievous and useless principle. In no country in the world could a people work out by themselves a successful campaign against plague, or against any other epidemic; the governing class must steer in such storms.

The Prevention of Ophthalmia Neonatorum.

IT is several years now since HERMANN COHN stated that "ophthalmia neonatorum can and ought to be made to disappear from every civilised country," yet all practitioners of experience are still only too familiar with the condition. As will be seen from our report of the Ophthalmic Section at the recent meeting of the British Medical Association at Exeter, nearly half (42·36 per cent.) of the inmates of the Sheffield School for the Blind are there on account of this disease. In 1888 the percentage for the same school as given by the same skilled observer, Mr. SIMEON SNELL, was 39·7. It would seem therefore that the last decade has not been noteworthy for any diminution of the ravages of the disease. Yet we cannot conclude that COHN'S aphorism is incorrect. It is admitted on all hands that ophthalmia neonatorum is a preventable disease: there is indeed scarcely a record of statistics in which this point is not emphasised. It is true that there has been an enormous improvement since 1881, when CREDÉ advocated his method of prophylaxis as a routine measure at all births, but none the less this grave scourge chastises our infant population.

No better survey of what has been done in the past and of what remains to be done in the future is afforded than that contained in Mr. SYDNEY STEPHENSON'S recent work on "Ophthalmia Neonatorum,"[1] which has been awarded the Middlemore Prize of the British Medical Association for 1907. All the available statistics have been collected and collated with admirable care. Lacking as such records so often are in the accuracy and minuteness of detail which are so much to be desired, two facts stand out clearly—viz., that the disease is still prevalent and that all is not being done that should be done in order to eliminate it. Mr. STEPHENSON has devoted much attention to the etiology of the disease, the only sure foundation of rational prophylactic measures. That something like one-third of the cases are due to organisms other than the gonococcus is important, since it may be utilised to minimise some of the sentimental objections to routine treatment in patients of all classes. Amongst the many weighty points brought into prominence in this excellent monograph is the fact that the gonococcal form often occurs when gonorrhœa is latent in the mother, who may indeed have been infected by gonorrhœa which was latent in the father. The evidence tends to show that infection of the baby's eyes with the causal organism occurs most commonly immediately after birth, less frequently than was once thought during birth, and occasionally several days after birth. From a review of the literature and from personal experience Mr. STEPHENSON concludes that CREDÉ'S method of prophylaxis must still be regarded as the best. As a matter of detail it is found that 1 per cent. silver nitrate is even more efficacious than the 2 per cent. solution advocated by CREDÉ, whilst the inflammatory reaction is less marked. Nearly all the bad effects which have been attributed to the treatment are due to faulty modifications in the technique advocated by the founder.

English ophthalmologists have not been blind to the gravity of the disease and its results. In 1885 a deputation of the Ophthalmological Society of the United Kingdom endeavoured to induce the President of the Local Government Board to sanction the distribution by the registrars of births of a simple notice pointing out the dangers of the disease. The Government declined on the score of expense, which was estimated at £7334. Mr. STEPHENSON'S comment is that "we grudge the expenditure of a poor £7334 per annum, when the Commonwealth is losing yearly upwards of one-third of a million sterling by reason of individuals disabled by the ravages of ophthalmia in infancy." Some countries are already ahead of us in their measures of prevention. Compulsory notification of the disease is in force in Switzerland, Germany, Austria, France, and many of the States of North America. There is every reason to introduce it with us, at the same time organising the means of coping with the cases. Every maternity hospital ought to have its ophthalmic surgeon, a step as yet taken only by Queen Charlotte's Hospital London; the Rotunda Hospital, Dublin; and the Maternity Hospital, Glasgow. Other preventive measures, easy and cheap in application, and requiring only organised effort, will readily occur to those qualified to deal with the matter. We cannot but think that the disease might thus be eradicated as completely as typhus fever has been. We hope that the British Medical Association may accept the mandate of its ophthalmic section, which passed unanimously a resolution that action towards the prevention of ophthalmia neonatorum should be undertaken by the Association; and we may be permitted to suggest that the Association should combine forces with the Ophthalmological Society, already a pioneer in this field of preventive medicine. It would not be the first time that two bodies have worked together to influence the Government, and in this case they will have behind them the solid opinion of all the medical profession that ophthalmia neonatorum could be and ought to be suppressed by proper measures of precaution.

[1] Ophthalmia Neonatorum. By Sydney Stephenson, M.B., C.M. Edin., Ophthalmic Surgeon to Queen Charlotte's Hospital, London, &c. London: George Pulman and Sons, Limited. 1907.

Infectious Diseases in the West Indies.

SOME four years ago[1] we drew the attention of our readers on several occasions to an epidemic which had occurred recently in Trinidad, and concerning the nature of which an unfortunate difference of opinion existed between the medical

[1] THE LANCET, April 18th (p. 1121), May 2nd (p. 1248), and June 20th (p. 1750), 1903.

authorities of Trinidad and Barbados. Small-pox had been prevalent in the latter island and subsequently an outbreak of disease occurred in the former which was declared not to be small-pox but an "eruptive fever" which was termed "epidemic varioloid varicella." Communications which passed between the governors of the two islands resulted in the despatch to Trinidad of Mr. J. F. E. BRIDGER who had been in charge of the small-pox hospital upon Pelican Island during the epidemic in Barbados. Mr. BRIDGER conducted his duties in a most thorough and scientific manner and came to the conclusion that the epidemic in Trinidad was "small-pox of a very mild type." This decision was not then accepted by the Medical Board of Trinidad. At the time we endeavoured to reconcile the conflicting opinions and pointed out that for a few years a similar mild eruptive varioloid disease had been extending over Canada and the United States, and we suggested that from the epidemiological standpoint it was highly probable that the disease, whatever it might be called, was the same in all these places. Subsequently, with a sense of relief, we were enabled to record a distinct change in the attitude of the Trinidad authorities. We received a copy of a leaflet issued by the medical officer of health of Trinidad headed "The Prevailing Epidemic: How to Prévent its Spreading," which compelled the conviction that the disease was recognised as being small-pox, although that dreaded word did not appear in print. We gave our reasons for arriving at that conclusion.

We have now received a colonial Blue-book issued by the Central Quarantine Authority for the West Indies, giving an account of the proceedings at meetings held at Bridgetown, Barbados, on June 11th and 12th last. We may here explain that by a scheme recommended by the Quarantine Conference of 1904, and recently adopted at the instance of the Secretary of State for the Colonies by the various colonial Governments which were signatories to the Convention, the Central Quarantine Authority was to meet once at least in three years or at any time at the request of two parties to the Convention. The recurrence of some cases of "eruptive fever" (similar to those which had occurred in Trinidad) and the outbreak of yellow fever in Trinidad had caused several questions under the Convention to arise between Grenada and Barbados on the one hand, and between Trinidad and Grenada and Barbados on the other. The meeting in June was accordingly summoned, and delegates from Trinidad, British Guiana, the Windward Islands, the Leeward Islands, and Barbados attended, with the Hon. W. K. CHANDLER, LL.D., C.M.G., as president. Many subjects of interest were discussed and the conclusions arrived at will doubtless be of lasting benefit in matters relating to infectious diseases in the islands concerned. We are concerned, however, at the present time with the epidemics of "eruptive fever" to which we have referred. The remarks on these outbreaks as reproduced in the Blue-book are brief but emphatic. The meeting considered and unanimously adopted the following decision: "That the disease which has within recent years been prevalent in Grenada and Trinidad, and there known by the name of 'eruptive fever,' is small-pox." We receive this conclusion with a considerable amount of satisfaction, as a reference to our previous views on the subject will prove that we strongly insisted upon this diagnosis as the correct one. To Mr. BRIDGER great credit is due for the firm attitude which he assumed after his visit to Trinidad at the time of the early epidemics. A medical heresy which he detected has been refuted and epidemiologists will welcome the announcement that the "new" epidemic disease which was said to have occurred in Trinidad in 1902-03 is now fully recognised to have been small-pox.

The reluctance of the authorities of Trinidad to acknowledge the existence of small-pox in the island, with the consequent harm to commercial enterprises, can well be imagined, but no good ever came of the policy of concealment, though it is eternally attempted in these situations by Governments no less than by municipalities and private individuals. The subsequent and somewhat tardy announcement of the Central Quarantine Authority for the West Indies, however, is worthy of all praise, as disposing of any doubt as to the real nature of the disease which was locally designated "eruptive fever." The whole history of the epidemic again proves what has now been so often experienced, the difficulties which may arise in the diagnosis of small-pox. As is well known, the distinction from varicella is often most difficult, and unless suitable precautions are adopted in doubtful cases widespread and deplorable results may follow. In the Blue-book no full account of the discussions is recorded; perhaps, as purely technical matters were involved, this was a wise procedure, but there were several points which required elucidation. For example, in the earlier stages of the controversy it was suggested that the epidemic disease in Trinidad was uninfluenced by vaccination, therefore it could not be small-pox. As we pointed out at the time, Mr. BRIDGER adduced evidence to the contrary, and it would have been interesting to know now whether vaccination was generally adopted after Mr. BRIDGER'S report and whether this had a notable effect on the spread of the epidemic. The medical officer of Trinidad, during the time of the early epidemic, recommended all persons not thus protected to be vaccinated, and we should have liked to hear a summary of what was done and what resulted. Mr. BRIDGER was subjected to much criticism at the time for daring to call the disease small-pox, but the decision arrived at by the Central Quarantine Authority amply bears out his contentions, and the courage which he exhibited in stating his unpopular opinion will win him great credit for independence as well as acumen.

The Connexion between Recruiting and the National Health.

THE statistics of recruiting and the general observations of the officers engaged in that important duty can be regarded as supplying a valuable link between the sciences of medicine and anthropology. As civilisation advances and knowledge and experience increase it will become clearer to all how paramount an object of interest to the nation as a whole is the health of every individual member of the nation. While, on the one hand, in hospitals and in private practice, the different types of accident, deformity, and disease present themselves daily to the physician, the surgeon, and the specialist, on the other hand, the different types of

health and those as yet imperfectly understood conditions in which, without actual disease, functions are impaired and weakened, present themselves day by day to the recruiting medical examiner. At the hospital we seek for disease, at the recruiting station we seek for health, being guided in each case by the laws of medicine in their broadest sense. With a perfect system of medical education it would be possible to imagine the medical student being forbidden to observe diseased conditions in hospitals until he had, in prisons, in workhouses, and in other public institutions, made himself thoroughly conversant with the usual types of bodily health and of existence, as modified by sex, age, and previous antecedents.

More than 30 years ago Dr. THEOPHILUS THOMPSON noted how remarkable it was that in this country, while descriptive anatomy and physiology were being so diligently studied, so little attention was ever directed to the development and proportion of the human body as a whole. We are quite familiar with the physical qualities of every bone of the skeleton, with the origin and insertion, usual and accidental, of every muscle, and with the normal course and the variations therefrom of every vessel and nerve to their final destination; but to the size, weight, and proportions of the whole body, and its variations under the modifying influences of age, sex, race, climate, food, occupation, and so on, we appear to attach little importance. Anatomical text-books are chary of giving such information even where it is available, and it would be possible for a student to win prizes over and over again in anatomy and remain ignorant of the larger facts of his science as illustrated by consideration of the body as a whole. Yet in all nature man probably exhibits the widest range of variation in type. The yearly reports on recruiting might form a valuable means of estimating the hygienic condition of a great section of the nation and of taking cognisance of the ratio, the origin, and the development of those various peculiarities of constitution which shorten certain individual tenures of life either by a premature old age of the body or by quasi-senile failure of particular organs. That recruits will be drawn largely from a class where good physique must not be looked for and where domestic environment has been faulty has, of course, to be remembered or our generalisations will be pessimistic out of all proportion to the true state of the case; as a matter of fact, deductions of this sort have already been drawn by some observers. But due regard having been paid to this fact a study of the statistics of recruiting must be fruitful in suggestion. In such a study it is obvious that we must avail ourselves of the work of successive decades of medical examiners. Old and new facts when collated, by the harmony which they exhibit, become mutually illustrative, and acquire a practical value previously unknown. Research into the statistics of recruiting might throw a side-light on the nature of epidemics, their power to modify pre-existing diseases, to increase the liability to contract other complaints, and by diminution of vital energy to lessen the resisting power of the animal economy in the presence of concurrent attacks of sickness.

Since the introduction of short service in the army, and the partial application of the same system to the naval service, the health of the people in general and that of the navy and army have intersected in an increased degree; and diseases contracted in and influenced by the Services will more and more be taken back at an early age to civil life. The diseases due to climate, venereal disease depending upon the enforced celibacy of the sailor and the soldier—these are brought into the civil community nowadays with prevalence that may be increasing. We are all of us, therefore, concerned in the good health of the recruit over and above our desire that our defenders should not suffer unduly and that our taxes should not purchase for us inferior material. The care in the selection of its recruits was no doubt one of the causes of the early invincibility of the Roman legions; and the camps, fortifications, and great highways constructed by them during peace in every country in their military occupation go to show that the men were never long confined to camps, but were kept by constant outdoor occupation of a civil nature in robust and vigorous health. The selection of the material for our national forces is a duty of the first importance and one demanding knowledge of a very high degree, not only of medicine and surgery in their various branches but of the allied sciences, which are so often studied only to be forgotten when they have once served purposes of examination; and to such knowledge must be added experience which alone can guarantee exactness in the observation of every individual and the determination of his physical peculiarities. The best medical talent available in the Services might well be drawn upon in the interests of recruiting.

Annotations.

"Ne quid nimis."

FOREIGN BODIES AS A CAUSE OF APPENDICITIS.

IN the etiology of inflammation of the appendix there is a little that we know and much that we have yet to learn. We know that in all forms of appendicitis the presence of micro-organisms is essential and that many different forms of bacteria may be responsible for indistinguishable clinical conditions. These microbes attack the walls of the appendix itself, they may pass through it and invade the peritoneum; or if they be sufficiently virulent they may lead to the death of a portion of the appendical wall and so lead to perforation and all its consequences. It is also certain that under perfectly healthy conditions the micro-organisms which habitually dwell in the cæcum and appendix have practically no power over the mucous membrane of the appendix; some predisposing factor must assist or some unusual micro-organism must be present. One of the most important of these predisposing factors is a blocking of the lumen of the appendix near its opening into the cæcum. This blocking may be the result of kinks, or external pressure, but commonly it follows some previous inflammatory change. Interference with the circulation in the appendix is also sometimes responsible for favouring the action of micro-organisms, for if the appendix becomes kinked its blood-vessels are narrowed and its blood-supply is materially affected. There is, however, another cause, sometimes merely predisposing, sometimes definitely exciting: foreign bodies may enter the appendix, or concretions may form within it, but from whatever origin they are derived no doubt can be felt as to the importance of these "appendical bodies" in furthering the

inflammatory changes in the appendix. Partly these bodies accomplish this by blocking the outlet and favouring the accumulation of mucus within the appendix. The increased tension thus produced in itself assists the passage of microbes into and through the mucous membrane and the other coats of the appendix, but it also damages the mucous membrane and thus lessens its resisting power. Further by inflicting injury on the lining membrane of the appendix these bodies assist in producing appendicitis. Before discussing the nature of these appendical bodies it is well to make clear the fact that the presence of one of these bodies is by no means essential to the production of an attack of appendicitis; in very many cases no included body is found in the appendix and even when it is there it is not rarely probable that it has not assisted in the causation of the appendicitis. Moreover, it is clear from our present knowledge that, though the stenosis which prevents the escape of an appendical body may be the result of the irritation produced by that body, a stenosis may occur from any attack of appendicitis, due to any cause whatever, and without the presence of an appendical body. In the present issue of THE LANCET are three papers bearing on the subject of the nature of the bodies found in the appendix. When the diseases of this organ first attracted the attention of the medical public it was believed that the majority of these bodies were "foreign bodies" in the sense that they were thought to have been taken in by the mouth. Many of them were of the size and shape of cherry stones, others resembled apple pips, and even when examined more carefully the stratification which was seen was thought to support the theory that they were seeds. Microscopic and chemical examination have shown, however, that the vast majority of these "foreign bodies" are nothing more than masses of fæcal material bound together with inspissated mucus. When the appendix is healthy it is possible that small fæcal particles may enter the organ for a time and then be carried out with the flow of the secretion of the appendix; but if at any time the presence of a minute fæcal mass should coincide with some predisposing factor, some temporary swelling of the mucous membrane near the orifice, then the imprisoned particle grows by the deposition on it of more fæcal material and is cemented with the morbid mucus poured out by the irritated walls. Not only, however, do these fæcal conglomerations mimic "foreign bodies"—that is to say, substances introduced from without—but they also imitate structures formed elsewhere in the body. Sometimes, though rarely, a number of facetted "calculi" are found in an appendix; in colour, in shape, and in appearance they are almost indistinguishable from biliary calculi; and it is certain that some of the cases in which gall-stones have been described as occurring in the appendix have been instances of facetted appendical concretions. The only valid test is the chemical, for if cholesterin and bile pigments are shown to be present the calculi may be claimed as gall-stones. Judged by this test true biliary calculi do very rarely occur in the appendix. Dr. D. T. Barry of Cork has contributed a paper to this issue of THE LANCET in which he describes a case where four small facetted stones were found in the appendix. They closely resembled biliary calculi, but when tested for cholesterin and for bile salts only negative results were obtained, and they were found to consist chiefly of calcium phosphate with a little organic matter. But true foreign bodies do occur in the appendix, and a paper, also in this number of THE LANCET, by Dr. W. Hal Barnett and Dr. J. W. Scott Macfie, describes a case in which a clove was found in a vermiform appendix which was the sole viscus in an inguinal hernia. The clove was well preserved and probably this was owing to its essential oil. The most important, however, of the three contributions which we have mentioned is by Mr. W. H. Battle. He points out that many fæcal concretions in the appendix have formed about a foreign body as a nucleus. This nucleus may be sometimes as big as a pin but it may be a minute particle. Of what does it usually consist? Mr. Battle maintains that there has been a real increase in the frequency of appendicitis; the older physicians did not have so many cases as we see now; it was not merely a want of observation; they were careful observers and if the condition had been even half as frequent as it is at present they would have observed it. Dr. Samuel Fenwick found only 19 cases of disease of the appendix in the post-mortem records of the London Hospital in a period of 40 years ending 1884. Several theories have been suggested to account for the real and enormous increase which has occurred, and after discussing some of the suggestions Mr. Battle brings forth the idea that minute particles of iron are the real cause. He shows that the great increase of appendicitis first occurred in America and at a time when steel or iron rollers had been recently introduced for grinding flour. The increase of appendicitis occurred first in the towns where the rolled flour was first used; then it spread to the villages, and lastly to the negroes who had earlier escaped, and this spread corresponded with the spread of the use of rolled flour. The invasion of this country followed, when the lower cost of American flour made it almost impossible for any extensive grinding of flour to take place in this country. If this explanation be correct we should expect to find iron particles in the centre of appendical concretions, and so we do. Mr. Battle recounts a typical case of appendicitis in which at the operation a concretion was found and in its centre was an irregular fragment of iron. It is well worth while to examine into the truth of this suggestion. The detection of metallic iron is easy; the magnet is of itself sufficient, but if any more were needed heating the concretion with dilute hydrochloric acid would soon furnish a solution to which the ordinary tests for iron could be applied. We are inclined to think there may be a good foundation for Mr. Battle's theory, and if examination shall prove its correctness in any appreciable number of cases we should be in a position to suggest precautions which might mitigate the frequency of appendicitis.

THE TRIPPER'S LEAVINGS.

THE excursionist who litters a grassy glade with greasy paper, who cuts his name on a venerable monument, or who pulls up the lilies on some lovely sheet of water is an objectionable nuisance whose education, not always that of the board school, has failed to teach him decent behaviour. He is, moreover, a person not likely to be deterred by any consideration for others from his malpractices, even if it be pointed out to him that his conduct not only annoys persons who are strangers to him but is actually a cause of danger to them. The waste-paper referred to once enwrapped the solids of an *al fresco* meal, and it seems generally to be made as conspicuous as possible by those who abandon it. By a strange perversity such trippers, when they have finished the liquor which they have brought with them, abandon their glass bottles in a surreptitious manner so that they become traps to injure the unwary, having previously satisfied their love of useless destruction by breaking them, using them as missiles or targets. Sometimes the fragments lie on the road where they can be seen and avoided, at others they are hidden in long grass by the wayside. When there is water at hand the bottles are generally thrown into it in order to be broken with stones as they bob up and down. The water may be the sea near a favourite beach, and every holiday time in crowded watering-places accidents occur from this disgusting practice, children and others finding their holiday

ruined by badly cut feet. The worst of it is that penal laws can do little towards preventing an offence which has to be detected and brought home to the offender before he can be dealt with. Thoughtlessness, let us hope, is the root of such conduct, and possibly some good would come from the publication of warning notices.

A YEAR'S WORK IN THE GOVERNMENT LABORATORY.

THE work of the Government laboratory does not diminish, for the total number of analyses and examinations made in the two branches of the laboratory—namely, at the Customs House and at Clement's Inn Passage—during the year ended March 31st, 1907, was 173,606 against 158,939 for the preceding year. The miscellaneous character of the samples examined is not surprising when it is remembered that the examinations are made in regard to three branches of Government machinery. There is first the work connected with the revenue departments (Customs and Excise), then the work in connexion with the various Government offices, and, finally, the work relating to the administration of the Food and Drugs Act and the Fertilisers and Feeding Stuffs Act. Under the last section the officials at the Government laboratory act as a kind of court of appeal in regard to samples of foods and drugs which the public analyst has reported against. The number of samples so referred this year was 114, compared with 101 in the previous year, and amongst these there was not a single sample of a drug. Out of 111 samples examined the Government chemists differed from the public analyst in 20 cases, which is equivalent to 18 per cent. of disagreements, against 9 per cent. for the preceding official year. Most of the samples referred were milk and the charge of adulteration could not be substantiated in ten cases—namely, six as regards added water, three as to deficiency in fat, and one as to the presence of boron preservative. In one sample of milk there was present the extraordinary quantity of 95 grains of boric acid per pint. Butter was another substance in dispute, for of five samples in which the charge was the presence of an excessive amount of water the Government chemists were unable to agree with the public analyst in one case. It may be noted, however, that there was agreement with the public analyst in regard to a sample of brandy declared to contain neutral or patent-still spirit, in regard to a specimen of coffee as to the proportion of chicory present, and in regard to a specimen of spinach as to its containing a certain amount of copper. Amongst the samples referred to the Government chemists by the Home Office were an opaque white glass used in the preparation of toilet pins and found to contain 34 per cent. of metallic lead, and seven samples of oil taken from motor omnibuses at the instance of the Commissioner of Police, the oil in each case proving to be of a mineral description. The fisheries branch of the Board of Agriculture submitted curious samples in the shape of the eggs of the dogfish, with the result that Dr. Thorpe, the principal chemist of the Government laboratory, reported that the dogfish egg contains appreciably more nutriment than the ordinary hen's egg, having regard to the greater weight of shell and water in the latter, and would be a valuable article of food if its pronounced fishy taste and smell were not found to be objectionable. The inquiry had its origin in the depredations of the dogfish in the fisheries of the Devonshire and Cornwall coasts. An unsatisfactory state of things is shown in regard to the importations of milk and cream from abroad, the samples having been taken at the instance of the Local Government Board. The figures show that butter from certain countries in particular frequently contains boron preservative in excess of the amount recommended as the limit by the committee on preservatives in food. Dr. Thorpe was one of the members of this committee and yet he writes in regard to the above disclosures, "In the absence of legislation on the point and in view of the conflicting decisions in the courts I have been unable to advise that proceedings should be taken." This seems to us to be rather an over-official attitude. Similarly 67 samples of cream were examined and 56 proved to contain boron preservative, and 43 of these also contained salicylic acid. How long is this dosing of milk and cream with preservatives to go on absolutely uncontrolled? Surely the principal chemist to the Government ought to take a firmer stand than this in regard to this subject about which nobody knows more than he does. In the Excise department it is of interest to note that the analysis of certain samples of beer from publicans revealed an extensive system of fraud on the revenue by the addition to beer of solutions of sugar and water in such proportions that the dilution of the beer was not apparent except on chemical analysis. In regard to 1133 samples of beverages sold as temperance drinks 71 contained 3 per cent. but less than 4 per cent. of proof spirit, 37 contained 4 per cent. but less than 6 per cent. of proof spirit, and eight contained 6 per cent. or more of proof spirit. Herb beer and dandelion stout contained respectively 10·5 per cent. and 12·3 per cent. of proof spirit. Of the 1268 samples of beer and brewing materials examined for arsenic 49 were found to contain this poisonous metal in excess of the limits laid down by the Royal Commission on Arsenical Poisoning ($\frac{1}{100}$th of a grain per pound of arsenious oxide in the case of solids or per gallon in the case of liquids). The examination of tea proved satisfactory. The importation of essence of coffee is prohibited, "but many of the so-called coffee essences are absolutely devoid of coffee"! And so prohibition does not apply to them. From the point of view of excise this may be satisfactory but that does not justify the cheating of the public or calling a preparation by a wrong name.

THE COÖPERATION OF LOCAL SANITARY AUTHORITIES WITH THE VIEW TO THE ESTABLISHMENT OF A NATIONAL HEALTH AUTHORITY.

IN the issue of THE LANCET of May 25th, 1907, p. 1445, we recorded a resolution passed by a conference of representatives of sanitary authorities in Northumberland and Durham which met at Newcastle on May 17th, to the effect that "In the opinion of this meeting it is desirable that a permanent union of the sanitary authorities of England and Wales be established as a supreme national health authority with the object of safeguarding and promoting the public health interests of the people at large against tuberculosis and other dangers to the public health." The meeting constituted itself into a temporary committee of representatives for the furtherance of the scheme. A second meeting of this committee was held at Newcastle on July 26th, when its numbers were increased by other medical officers of health and councillors. Alderman Dr. W. H. Newton presided, and in his opening statement referred to the encouraging support which had been accorded to the movement in the medical press and other quarters. A list of subjects was approved as the basis of an invitation to county councils and sanitary authorities (urban and rural) to appoint representatives to attend a conference with the object of establishing a supreme national health authority, this authority to consider all matters bearing on the public health, including tuberculosis in man and animals, milk and meat supplies, infant mortality, occupational diseases, water-supply, vagrancy, vaccination, physical degeneration, the drink problem, the disposal of sewage, the pollution of rivers, the promotion and encouragement

of the use of bacteriology as a preventive measure in relation to disease, the prevention of syphilis as a national evil, the housing question, and the securing of the necessary powers and funds to carry out the requirements in respect of the foregoing matters and all other questions relating to public health. An executive committee was appointed with power to arrange for the conference in question to be held in London in October or early in the winter and to invite representatives from Scotland and Ireland to the conference. We gave our support to this scheme at its inception as a definite endeavour to promote the establishment of a properly organised public health service such as in other countries is represented in the Cabinet. The recognition of the aims of the conference by speedy legislation does not appear to us to be very probable, but the thanks of the community will be due to those who are succeeding in making a public question of a national health authority. We consider that the present coöperation is setting to work in the right way to win notice in the proper quarters.

THE DIRTY WATER-BOTTLE.

IN places of refreshment a clean sparkling water-bottle is rarely the rule. The glass is usually filmy instead of bright and often presents an appearance distasteful to cleanly sentiment. It has even been suggested that there is a definite design in exhibiting on refreshment bars water-bottles not scrupulously clean, the idea being that the customer may be induced to order a bottle of mineral water instead of slaking his thirst gratuitously. Dirt is nearly always the evidence of things unseen in the shape of micro-organisms, and the public have a right to expect the water supplied to them to be in a fit condition for drinking. We go further and suggest that our health authorities might occasionally organise a system of inspection and examination of the water used for drinking purposes at railway bars, restaurants, public-houses, and other places of refreshment, and inflict a wholesome penalty on the caterer who keeps the water-bottle and the water in it in a dirty condition. It should be remembered that though, on the whole, the water-supplies in most towns are good, yet they are rarely sterile, and micro-organisms accumulate in great numbers on the deposit which sooner or later is thrown down from the water kept stagnant in a bottle. The dirty water-bottle is an offence against clean, healthy principles which require no scientific refinements to establish them. Then let scrupulously clean water in scrupulously clean containers be insisted upon everywhere.

MEDICAL EXAMINATION OF PUBLIC SCHOOL BOYS.

MUCH has been written as to the necessity for a proper medical examination of children attending public elementary schools, and there seems at last some likelihood that provision for such needs may be made by Parliament. A similar examination of the boys who enter at our large public schools may not at first sight appear so indispensable, inasmuch as they are drawn from the richer classes, and not only should they be presumably free from many disorders resulting from unwise or defective feeding, but any physical defects should be already well known to their parents who can afford constant medical supervision. The inquiry carried out by Dr. Clement Dukes, an account of which appears in another column, shows that this presumption is scarcely borne out by the facts. It is certainly surprising to find that deformities resulting from past rickets may be common among boys who enter at our public schools. Thus of 1000 boys examined, ranging chiefly between the ages of 13 and 15 years, no less than 445 presented lateral curvature of the spine and 526 had knock-knees, while pigeon-breast was observed in 126. Flat-foot, not necessarily a rickety defect, was found in 329. Dr. Dukes attributes the existence of rickets among the wealthier classes to failure of the mothers to suckle their children and to the resulting use of patent foods deficient in nourishing qualities. Another point of interest in Dr. Dukes's paper which may here be alluded to is the association of adolescent albuminuria with chilblains. Both maladies are, we believe, benefited by treatment with calcium salts and may depend on the same vascular condition. It is gratifying to find that Dr. Dukes does not attach any serious pathological importance to this form of albuminuria and deprecates any serious restrictions on a boy's pursuits on its account.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN BULGARIA.

ADDRESSING one of the sections of the recent International Congress of School Hygiene, Mrs. Watt Smyth, the author of that excellent book "Hygiene Based on Physiology for School Teachers,"[1] said that she had just returned from Bulgaria where, through the courtesy of the Government, she had been allowed to make a study of the school systems prevailing in the different parts of the country. As a result she was particularly struck by the excellence of the system of medical inspection of secondary schools, introduced by M. le Docteur Schichmanof, Minister of Public Instruction. The system has been actually in force for four years and might be copied with advantage in England. The history of Bulgaria makes this particularly interesting inasmuch as a generation has not yet passed since that country had achieved its independence. Education, Mrs. Watt Smyth said, was made compulsory in 1879 and it was significant that whereas 25 years ago of the recruits of the Bulgarian army only 10 or 12 per cent. could read or write, now 97 per cent. could both read and write, the 3 per cent. being of other nationalities. Mrs. Watt Smyth wished to make it quite clear that in all the secondary schools a medical practitioner, who in the case of girls' schools was a lady, attended every day for as many hours as was necessary. It appears from her observations that a well-equipped consulting-room is provided in each school building with all the appliances necessary for the examination of scholars. A separate health note-book is kept by the medical inspector for each child during its school life. On first admission the scholar is examined undressed and entries made of weight, height, chest measurement at rest and in full inspiration, vital co-efficient, muscular force, and physical defects. The sight and hearing are tested and the teeth examined, the general condition is considered, and the health of the parents and the diseases from which the child had suffered are entered. This examination is repeated twice a year in the upper and three or four times a year for the lower standards. If at this examination a child is found to be sickly, ill-developed, or suffering from definite disease, the parents are communicated with and the child is given leave of absence for treatment by the family medical attendant. The school medical officer visits the class-rooms and if a child is ill for more than one day he is sent home and not again admitted without a certificate signed by his family medical attendent and countersigned by the school medical officer. The latter keeps a special list of scholars suffering from any serious disorders, such as heart disease, and watched them carefully. It is interesting to note that during the past three years in the girls' secondary schools at Sofia no case of infectious disease from among the day scholars has got further than the medical officer's consulting-room and there has been no case among the boarders. The medical officer has the power

[1] THE LANCET, Oct. 21st, 1905, p. 1187.

of excusing pupils from gymnastics or from any classes considered injurious to their health. At the same school at Sofia, out of a class of 950, 100 were excused from certain classes during this last term. All children predisposed to, or suffering from, tuberculosis are rigorously excluded, those where the disease could be definitely diagnosed being sent to sanatoriums, and those in whom there is predisposition sent for rest and an open-air life to the Colonies Scolaires. In another communication to the Congress Dr. Pascheff said that in Sofia a benevolent society has obtained a house ten kilos from Sofia, and that it was being furnished to serve as a prophylactic home for children who were failing in health. Mrs. Watt Smyth gave further details. The medical officer to the school, she said, was responsible for the hygienic condition of the school and equipment; for the health of the scholars, especially with regard to checking infectious diseases; for the anthropometrical records; he gave lectures to the teachers on personal and school hygiene, first aid, and popular medicine; and to the scholars instruction in the rudiments of anthropometry, physiology, and general and school hygiene. This was particularly important in view of their intelligent coöperation in the future medical examination of elementary school children and the checking of infectious diseases. He made an annual report on the work accomplished; he was also consulted with regard to lessons and the framing of the time-table and with regard to punishment. He also advised as to revaccination. Very poor children, except in cases of infectious disease, were treated at school or at home by the school medical officer and food and medicine were supplied to them from the funds of the school bank. He entered in a register, signed once a month by the school director, all general notes with regard to the health of scholars, defects in the school building and infectious outbreaks. At intervals the medical officers to the schools held meetings and other practitioners were invited to take part in the discussions at these meetings. We agree with Mrs. Watt Smyth's evident view that a very complete scheme has thus been inaugurated in Bulgaria inasmuch as it insures a supply of healthy teachers, who, being trained in hygiene, will be fitted to apply its principles in the hygiene of the schools to which in due course they may be appointed.

THE ELIMINATION OF AGGLUTININS IN THE URINE OF PATIENTS SUFFERING FROM TYPHOID FEVER.

Dr. Heinrich von Hoesslin of Munich has published in the *Münchener Medizinische Wochenschrift* of April 30th some interesting clinical and experimental observations to determine whether the agglutinating substances in the blood are demonstrable in the urine. At the outset it was important to differentiate between patients in whom the kidneys were normal and those with albuminuria. He found that in the former group—i.e., patients passing urine free from protein—no agglutination was obtained with the urine, whether the agglutinating power of the blood were high or low. On the other hand, in three cases of typhoid fever with acute hæmorrhagic nephritis the urine was found to have distinct agglutinating properties, the intensity of which depended upon the agglutinating power of the blood and the amount of protein in the urine. Similar results were obtained in cases without actual nephritis but with febrile albuminuria. Here the agglutinating powers were less marked than in the cases with nephritis but were quite easy to demonstrate. These observations were experimentally confirmed in rabbits. Dr. von Hoesslin concludes that the normal kidneys are impermeable to the agglutinins, that these substances can, however, be eliminated in company with proteins in the urine when the kidneys are damaged, and that the amount of agglutinins so secreted is more or less proportional to that of the protein. It has already been shown by Pick that the agglutinins are of protein-like characters and that they can be precipitated together with the eu-globulin fraction of the blood proteins. Many views have been put forward as to the origin of the agglutinins; the spleen, the lymphatic glands, and the bone marrow have all had this function attributed to them, while Gruber is of opinion that the leucocytes are also concerned in their production, but as to the channels by which they are eliminated little or nothing has been hitherto known except that they are not found in the ordinary secretions and excretions, with the exception of the milk during lactation, in which according to Stäubli [1] they may be present in greater quantity than in the serum. They have also been found in the serum of blisters, in pericardial and pleural exudates, and in the fluid of œdema. Dr. von Hoesslin also finds that an inflammatory process increases the amount of the agglutinins in any exudate—e.g., in the cerebro-spinal fluid of a case of meningitis complicating typhoid fever the amount of these substances present was found to be markedly increased.

ANTHROPOLOGY IN CENTRAL EUROPE.

ONE of the most interesting exhibits at the Exhibition of Prehistoric Anthropology recently held at Strasburg was the mummy of a Greek physician of the imperial period discovered at Achmin, in Upper Egypt, by Dr. R. Forrer, the Swiss palæontologist. The mummy, which was in perfect preservation, belonged to one Paulos, surnamed Jatros, the healer. Wrapped in a *toga clavata* of fine linen, adorned with bands and circular patches of purple, the body has not the familiar outlines of a mummy but appears simply as a long parallelogram. Round the neck of the physician, who was bearded, was found a chaplet of flowers and a ribbon of honour was wound about the feet. The choice of Alsace as a typical prehistoric centre is justified by the fact that this part of Europe is especially rich in remains of the Stone Age, of which the Heidenmauer, in the Vosges, with its string of so-called Druidic remains, is a unique example. The "Collection Forrer" contains an exhaustive collection of Alsatian skulls, many of which are of the brachycephalic type peculiar to the men inhabiting Europe long prior to the Teutonic invasions. This type of skull is still common among the peasantry on the left bank of the Upper Rhine and in Switzerland, and abounds in extant charnel houses. The Eggisheim skull, which is Alsatian, is of the same epoch probably as the Neanderthal and Spy skulls, or as the Galleyhill skull from Kent. The contention, therefore, that man first appeared on the earth's surface in Southern and Central Europe has much to support it. Dr. Forrer is to be congratulated on having gathered together a truly remarkable palæontographical collection, which ranges from skeletons found with weapons and pottery in tumuli, to the rude wooden locks of a prehistoric type still used in Alsace-Lorraine farmhouses. The rapidly delivered perambulatory lecture, in which Dr. Forrer explained his collections on August 15th, was of a type which, if instituted in our museums, would do much to explain the ideas of ethnologists to English students. All classes of the public, from soldiers of the line to artizans, were among the learned lecturer's hearers.

THE GERMICIDAL VALUE OF LIQUOR CRESOLIS COMPOSITUS, U.S.P.

THE recognition of the higher germicidal power of cresylic acid (cresol) over carbolic acid has led to the introduction of numerous proprietary solutions. It is desirable that such preparations should be uniform in composition and with this

[1] Zentralblatt für Bacteriologie, 1903, No. 33.

end in view a disinfectant compound has been introduced into the United States Pharmacopœia, under the name liquor cresolis compositus, consisting of crude cresol dissolved in an equal weight of soap solution. The crude cresol is a variable mixture of ortho-, meta-, and para-cresols, which may be separated by taking advantage of their different boiling-points. Dr. C. N. McBryde, bacteriologist to the United States Department of Agriculture, has determined the germicidal value of this preparation for various micro-organisms, including bacillus pyocyaneus, bacillus coli communis, bacillus typhosus, and bacillus tuberculosis and staphylococcus pyogenes aureus.[1] He has found that the liquor cresolis compositus is one and a half times as active a germicide as carbolic acid, even when prepared from a cresol of low boiling-point and free from meta- and para-cresols. The germicidal efficiency of the preparation increases with the boiling-point of the cresol it contains, and solutions made from meta-cresol and para-cresol are both much stronger germicides than a solution made from a low boiling cresol, which approximates to ortho-cresol. The bulletin contains details of the experiments which were conducted for the determination of the carbolic acid equivalent. In the case of a solution prepared from a low boiling cresol a 1 in 175 dilution was superior to a 1 in 125 solution of carbolic acid in its action on bacillus coli communis. In a comparison of the action of preparations of the three cresols on the same organism it was found that in dilutions of 1 in 250 ortho-cresol was not fatal in 15 minutes, para-cresol was fatal in 12½ minutes, while meta-cresol proved fatal in seven and a half minutes. It follows that a meta-cresol is superior to para-cresol, and that both are superior to ortho-cresol. The introduction of an official preparation of the higher cresols, the germicidal value for which has once for all been determined, would be a valuable addition to medicine and surgery. Crude cresol is less poisonous than carbolic acid, it is cheaper, and, as has been shown, it has a higher germicidal value. Its solution in soap is miscible with water, turpentine, glycerine, alcohol, and fats, and is effective in dilutions of from 1 to 2 per cent. It may be prescribed in the form of a gargle, spray, douche, lotion, liniment, or ointment.

FOREIGN CONFERENCES ON EDUCATION AND HYGIENE.

THE recent successful conference in London on the hygiene of school children was the expression of an awakening of international interest in the important issues which were under discussion. Conferences dealing with some branch of the subject have recently been held in both Switzerland and Germany. In Switzerland the sixth annual conference of persons interested in the treatment of imbecile children was held this year at Solothurn. The president, in his opening address, reviewed the progress of the past decade. The number of Swiss institutions for treating imbecile children had risen in this period from 13 to 29, and the number of children treated from 411 to 1172. In 1906 the canton of Lucerne opened a public institution for the care of defective children, and this, the first case of direct public assistance, was heartily welcomed. The number of special classes—i.e., primary classes for defective children—had risen from 20 to 67 and their pupils now number 1415 instead of 567 ten years ago. The following motions were carried:—

1. Defective children—i.e., imbecile, dumb, blind, deaf, epileptic, and crippled children—should be taught in separate schools or classes in their own interest as well as that of the school and society.
2. Experience shows that the majority of these children are sent too late, if ever to the special school.
3. To meet the defects of the Education Acts, the care of these children must be the subject of legislation, and in particular their attendance at some school must be made compulsory during the usual periods.
4. Institutions for dealing with defective children must be maintained or supported by the State.
5. An annual medical examination of children entering the primary school should be held to test their mental capacity.
6. The cost of maintenance of a child in an institution is to be charged to the canton and the parish. The parents are to be called upon to contribute in a fitting manner.
7. The Federal Council should be asked to amend the Education Acts so as to allow institutions founded by private societies to qualify for grants from the subventions given by the Federation to the primary schools, provided that these institutions accept inspection and prove to be satisfactorily conducted.
8. The cantonal Governments are likewise to be asked to support private endeavour in future legislation.

In Germany, at Mannheim, the third Congress for combating venereal disease was mainly concerned in discussing the question of teaching the laws of sex to school children. It was agreed that this proceeding was desirable, but opinions differed as to whether it was better done at home or at school. The majority were in favour of approaching the matter through simple lessons in biology. Another important branch of pediatrics will be discussed at the annual meeting of the German Society of School Hygiene, which will be held at Darmstadt; this is the care of the teeth in children. Dr. Jessen of Strassburg has drawn up a schedule of information on the matter for the consideration of school authorities. It will be remembered that the same topic produced a useful debate at the recent meeting of the British Medical Association at Exeter. It is encouraging to know that there is a universal movement to study the vital problems connected with hygiene in the upbringing of children.

THE MISTAKEN DIAGNOSIS OF TYPHOID PERFORATION.

THE *Boston Medical and Surgical Journal* of July 18th contains an important paper on the Mistaken Diagnosis of Typhoid Perforation, by Dr. C. L. Scudder. Instances of mistaken diagnosis fall naturally into three groups: (1) those in which no lesion is discoverable; (2) those in which the lesion found does not involve the peritoneum; and (3) those in which the lesion found involves the peritoneum. Among the examples of the second group recorded are cases of pneumonia, gastritis, entero-colitis, Zenker's degeneration of the abdominal muscles (beginning with hæmorrhage into the muscles), and distended bladder. The symptoms of perforation—sudden abdominal pain, tenderness, rigidity, distension, vomiting, and rapid pulse—are also symptoms of peritonitis, and therefore certain cases of peritonitis due to other causes than perforation have been mistaken for the latter. Prominent among these are cases of cholecystitis and perforation of the gall-bladder. Keen has collected 34 cases in which perforation of the gall-bladder was mistaken for typhoid perforation of the intestine. In these cases seven operations were performed, of which five were complete, with one death. All of the cases in which no operation was performed were fatal. Killiani has reported a case in which there were two perforations of the intestine and a perforation of the gall-bladder in the fourth week of typhoid fever. In a case of strangulation of Meckel's diverticulum during typhoid fever an operation was performed under the diagnosis of perforation of the intestine. Another cause of mistake is rupture of infected mesenteric glands in typhoid fever. In such cases the typhoid bacillus has been found in pure culture in the peritoneal cavity. Thrombosis of the femoral and iliac veins is also a source of error. Peritonitis may occur in typhoid fever without perforation or other discoverable lesion. In some of these cases, no doubt, an impending perforation existed. Other causes of peritonitis in typhoid fever are softened splenic infarcts, abscess of the bladder wall, and abscess of the liver. Occasionally cases of appendicitis have been operated upon under the diagnosis of typhoid perforation. Dr. Scudder reports the following case. A woman, aged 38 years, was admitted into hospital on May 20th. Four weeks before she was taken

[1] Bulletin No. 100, Bureau of Animal Industry, United States Department of Agriculture.

ill with malarial cramps in the abdomen and diarrhœa. On admission the abdomen was tympanitic and somewhat rigid, the temperature was 102.2° F., the pulse was 102, and the leucocytes were 9900 per c mm. The Widal reaction was obtained. On June 5th the patient was comfortable, the temperature was nearly normal, and there was no tympanites. On June 8th, at 6.30 A.M., severe abdominal pain, most intense in the lower abdomen, appeared after the action of the bowels. The abdomen was rigid and tender in the lower part. A chill and rise of temperature to 103·6° F. followed. The abdominal rigidity increased and dulness was observed in the flanks. The number of leucocytes rose to 18,000. At noon the temperature was 105° and the pulse was 130. Vaginal examination revealed fulness and increased resistance in the left fornix. Laparotomy was performed and thick puriform fluid was found in the abdominal cavity. There was no fæcal odour and no gas in the abdomen. The appendix was normal. The ileum was examined for several feet but no perforation was found. There was a left pyosalpinx which had ruptured into the abdominal cavity. Salpingectomy was performed and the abdominal cavity was flushed with saline solution. A gauze wick and rubber tubes were placed in the pelvis. The typhoid bacillus was found in the pus. Recovery ensued. Dr. Scudder could find recorded only two cases of pyosalpinx complicating typhoid fever, but in neither was a bacteriological examination made. This case shows the importance of examining the pelvis before operating for typhoid perforation in females.

THE AWARD OF A GOLD MEDAL OF THE SOCIETY OF ST. JOHN OF JERUSALEM TO A GERMAN MEDICAL MAN.

WE have great pleasure in recording that the Prince of Wales and the Chapter-General of the Order of St. John of Jerusalem have awarded the Order's medal to Dr. Albert von Lecoq of Berlin in recognition of a splendid act of humanity and devotion. This is to be made the first occasion of striking the medal in gold, as is indeed fitting, for we doubt if ever a man before played so bravely the part of the good Samaritan. Dr. von Lecoq was travelling in Chinese Turkestan last September and met at Kashgar Captain J. D. Sherer, a British officer. They agreed to travel back to India together by the Karakoram route and had crossed the Karakoram Pass. On Oct. 2nd Captain Sherer was laid up with typhoid fever and pneumonia, and Dr. von Lecoq, after looking after him for 11 days, decided to go forward to Panacuik to bring back assistance. He did so, and nine days later arrived back with a dooly, 20 Ladakhis, and fresh ponies. We can best describe what this feat entailed by quoting from the official account:—

> To perform this feat he was obliged to travel from dawn to sunset daily for nine consecutive days, crossing the dreadful Sassar and Murghi Passes twice. During this time this gallant gentleman lived on flour balls rolled by his Anjaulik servant and then dipped in melted grease, as he left meat and other stores behind him, with a complete disregard of himself and his own health, fearing Captain Sherer would run short. On Oct. 22nd they started for Panacuik and on Nov. 2nd arrived at Leh. That Dr. von Lecoq, a mere road acquaintance of Captain Sherer's and a man of different nationality, should cross the Sassar and Murghi Passes three times in 14 days, the third time in a blinding snowstorm, the first-named pass being 17,840 feet high, and the summit consisting of some three miles of perpetual glacier, appears an act of self-sacrifice, humanity, and devotion which is deserving of exceptional recognition.

We must add that this heroic man was himself in a debilitated condition from dysentery and hard living during two years' travel on scientific research in Turkestan. It has been well said that science and humanity know no boundaries and never has it been more truly proved than by this gallant German. Captain Sherer's country has rightly marked its debt of gratitude in a signal manner to a man of whom the medical profession throughout the world may justly feel proud.

EPIDEMIC CEREBRO-SPINAL FEVER.

IN London during the month of July there were 17 cases of epidemic cerebro-spinal fever notified, of which four belonged to Islington, three to Battersea, and two to Bermondsey. In Ireland during the week ended August 17th there were six deaths from this cause registered in Belfast. In Scotland there were seven deaths registered in Glasgow, two in Edinburgh, and one in Paisley. In Glasgow the weekly report issued on August 16th showed that there were at that time 40 cases under treatment. It is announced that the governor of Dalkeith Combination Poorhouse (*Anglice*, the master of Dalkeith union workhouse), near Edinburgh, has been removed to Dalkeith fever hospital suffering from cerebro-spinal meningitis.

THE King of Italy has graciously consented to become a patron of the International Institute for the Study of the Causes of Mental Diseases and their Prophylaxis. As a consequence, we are informed, the Italian Minister of Foreign Affairs is about to invite the various Governments to nominate official delegates to the association. It may be remembered that an international committee was formed at the Milan Congress on the Care of the Insane in 1906, and it is hoped that as many members of this committee as possible will meet at Amsterdam between Sept. 2nd and 7th during the meeting of the forthcoming International Congress of Psychiatry and Neurology. In this way it should be possible to arrange definitely the programme of work of the association.

WE regret to hear that Dr. David Nicolson, C.B., Lord Chancellor's Visitor in Lunacy, was injured while proceeding on an official visit to the Hull City Asylum on August 17th. The horse attached to a hansom cab in which Dr. Nicolson was riding having bolted, and the driver being dislodged from his seat, Dr. Nicolson jumped out of the vehicle and sustained a downward dislocation of the left shoulder-joint. This was successfully reduced and the patient is now progressing satisfactorily.

His Highness Prince Henry zu Schönaich-Carolath will be President of the Fourteenth International Congress of Hygiene and Demography. Dr. Rubner, Privy Councillor of Medicine, professor of hygiene at the Royal University of Berlin, and Professor Dr. von Mayr, Under Secretary of State, Munich, will be Vice-Presidents.

THE Royal Society has provided funds for the investigations which Dr. F. H. Scott is making with respect to the metabolic processes in nerve cells, and has awarded a studentship in biology to Dr. H. M. Woodcock in connexion with researches into the life-history of certain hæmatozoa of birds, to be carried on at the Lister Institute of Preventive medicine.

THE St. Thomas's Hospital old students' dinner will take place at the Victoria Hall, Hotel Cecil, on Tuesday, Oct. 1st, at 7 o'clock for 7.30. The chair will be taken by Dr. Theodore Dyke Acland.

THE King has been pleased to appoint Lieutenant-Colonel James Will, R.A.M.C. (Principal Medical Officer), to be an Official Member of the Legislative Council of the East Africa Protectorate.

PONTYPOOL HOSPITAL.—It has been decided to expend £150 upon an electrical installation at the Pontypool Hospital, which was opened in the autumn of 1903. There is accommodation for 19 patients in this institution, which was not only opened free from debt, but has also always been able to obtain an income more than sufficient for its needs.

MEDICAL NOTES ON THE MAHOMEDAN PILGRIMAGE OF 1907, TAKEN FROM THE REPORTS OF THE EGYPTIAN QUARANTINE DEPARTMENT.

DURING the three months, February, March, and April, 43,271 returning pilgrims, of whom nearly one-half were Egyptians, were landed at Tor encampment to undergo quarantine as a consequence of the existence of plague at Jeddah. Of this number 3·4 per cent., or 1465, were admitted into the Tor hospitals, and of the hospital inmates no less than 29 per cent. died, showing the grave nature of their diseases. As usual on such occasions dysentery was the chief cause of illness, besides many cases called enteritis and diarrhœa. Several different varieties of dysentery were present and although in 17 fatal cases in one hospital amœbæ were only discovered during life in the evacuations of four patients the microscope revealed amœbæ in the intestinal ulcers in every case after death. In some few instances the Shiga bacillus was found and there were many instances of diphtheritic dysentery. One of the complications of the dysentery was large numbers of intestinal parasites, especially the *Ascaris lumbricoides*. Abscess of liver is rare in returning pilgrims and so is perforation of the intestine, but peritonitis, broncho-pneumonia, and albuminuria are constantly found at necropsies. The rectum and the cæcum were the parts of the large intestine most affected and even when the whole of the large intestine was infected the lesions stop abruptly at the ileo-cæcal valve. Several times the dysentery was found to be gangrenous before death. It must not be forgotten that many of the patients are very old men, worn out with fatigue, and suffering from depression after many days of great religious excitement.

Although more than 16,000 pilgrims were landed from Jeddah only two cases of plague were discovered, both towards the end of the season; both cases were fatal, one a bubonic patient who became septicæmic and then infected his wife with pneumonic plague. Many cases of malaria were seen, mostly benign tertian or malignant tertian, and occasionally the quartan variety, which yielded to intramuscular injections of quinine.

In the isolation hospital there were 123 admissions, including small-pox, chicken-pox, erysipelas, and some cases of dysentery which were admitted when the other hospitals were too full to receive them.

For the third year Dr. Gotschlich discovered cholera vibrios in a few patients who showed no clinical or pathological signs of cholera. In the surgical wards 17 cases of tropical phagædenic ulcers were admitted. The patients treated were of many nationalities—Egyptians, Turks, Russians, and a smaller number from Tripoli, Algiers, Morocco, Syria, Tunis, Bosnia, and Bulgaria.

A large number of pilgrims this year went direct from the Sudan, for the new railway now allows them to get from Khartoum to Jeddah in less than three days at the modest price of £1 per head.

At the Suakin camp 230 vaccinations were performed on the children of the pilgrims, and one healthy negress, who chose that occasion to have her first child, required, before delivery, the operation, sometimes necessary in the Sudan, of dividing the artificial hymen which is the result of sewing up the labia majora as a sequel to clitoridectomy during childhood.

The water-supply of Jeddah was well described in a recent number of THE LANCET (July 6th, p. 51), but the description of Dr. Suleiman Bey Hamada, who accompanied the caravan all the way to Mecca, makes it clear that Jeddah fully deserves the plague, though it is hard on the pilgrims coming from fairly clean countries to have to run the gauntlet there. He says that a horrible smell was noticed at a great distance from the town, and that fæcal matter and rotten fruit and vegetables were lying about everywhere. Hence arose dysentery and typhoid fever, so that every day several pilgrims died in the open street without having received any medical help. Several pious regulations exist on paper, but the local Turkish authorities have no sufficient *personnel* and are too much afraid of causing a revolt among the pilgrims to attempt to carry out the sanitary laws. During January no less than 656 deaths occurred there (including 34 from plague), mostly due to undiagnosed diseases of the digestive system. In March the deaths from plague in Jeddah reached 149, yet there is no isolation hospital and apparently no means of treating the sick! The road between Jeddah and Mecca was free from robbers this year, but more than 20 Indian corpses were left by the roadside to be disposed of by vultures and wild animals, for there is no medical man to report the death of a pilgrim on this part of the journey and still less to declare officially the cause of the death. Mecca was entered with a caravan of more than 15,000 camels and the city was found to be relatively clean, though there were many cases of dysentery and pneumonia and the small-pox patients walked about as they pleased among the throngs of excited devotees who numbered this year about 250,000. The general mortality during the feast days varied between 50 and 80 per day, chiefly amongst Indians. The pilgrims from Java and the Sudan also furnished a terrible number of deaths, but apparently there were no cases of plague transported from Jeddah.

At Yambo, on the way to Medina, the water sold to the pilgrims is said to have been disgusting, smelling badly, of a milky colour, and full of larvæ. Again, at Yambo there is no hospital provision for the sick.

Enough has been said to show the difference between the satisfactory arrangements of the International Quarantine Board of Egypt under the presidency of Dr. M. Armand Ruffer and the criminal carelessness of the Turkish Government in the Holy Places.

THE SEVENTH CONGRESS OF SCANDINAVIAN SURGEONS.

(FROM OUR OWN CORRESPONDENT.)

The Seventh Congress of Surgeons from the four Scandinavian countries (Denmark, Finland, Norway, and Sweden) was opened in Christiania on August 8th, the PRESIDENT, Dr. JERVELL of Christiania, being in the chair. The Congress was in session from August 8th to the 10th, the morning of each day being reserved for the consideration of subjects selected for discussion. During the afternoons communications were delivered by members of the Congress on various surgical topics.

On the first day Professor T. L. BORELIUS (Lund) opened a discussion on Resection of the Colon. His experience, gained from his own 29 cases, led him to the following conclusions: 1. In cases complicated by ileus primary resection is not to be performed, but a palliative operation, doing away with the ileus. 2. Where ileus is not present primary resection of the *ascending* colon may be carried out. 3. Resection of the *left* part of the colon ought not to be done as a primary operation, but one may choose between the Bloch-Mikulicz extraperitoneal operation or the operation in three stages (*séances*). 4. As to the transverse colon, a part of not too great length may be removed by primary intraperitoneal resection or by the Bloch-Mikulicz operation. If a larger part is to be removed it is best to resect the whole of the right or of the left half of the colon, according to the site of the disease, by the operations recommended above (3). 5. For the resection of the lowest part of the colon (in the vicinity of the rectum) Schlosser's operation in three stages is to be preferred.

Professor JOHN BERG (Stockholm) said that since 1890 he had performed resection of the colon in 31 cases with eight deaths. He had tried the operation in two or three stages, but felt inclined to prefer the primary resection.

Professor TSCHERNING (Copenhagen) preferred a palliative operation in serious cases, but emphasised the impossibility of laying down hard-and-fast rules for the treatment, the cases being so different.

Professor BERG read a paper on the combined method in operation for cancer of the rectum. During the years 1890 to 1907 he had operated on 156 cases of cancer of the rectum. In 48 cases a colostomy was done with a mortality of 14·6 per cent., while in 19 not severe cases amputation or resection without auxiliary incision was performed with one death. In the majority of the patients (77) amputation or resection by means of incision in the sacral region was done with seven deaths. The combined abdomino-sacral or sacro-abdominal was used only in 12 patients, of whom six died as a result of the operation. Professor Berg drew particular attention to a mishap he had experienced in four of these 12 cases—viz., gangrene of the lower stump of the rectum—and discussed the origin of this disagreeable complication and how it might be avoided.

Notwithstanding the great mortality he thought that the combined method had a certain field of its own, especially when it could be foreseen that the removal by the sacral method would be too difficult or incomplete, or where such proved to be the case after a beginning had been made with the sacral operation.

Dr. JOHAN NICOLAYSEN (Christiania) reported two cases of Chronic Ileus, and Dr. P. BULL (Christiania) one of Volvulus of the whole of the Jejunum and Ileum.

Professor ALI KROGIUS (Helsingfors) illustrated and explained an ingenious method of treating the duodenal stump remaining after resection of the pylorus, so as to avoid the various unpleasant sequelæ which often arise from its defective treatment.

Professor BORELIUS read a paper on a series of 43 cases of Stone in the Ductus Choledochus. From July 1st, 1898, to July 1st, 1907, he had operated on 180 cases of gall-stone and had performed choledochotomy in 30 cases with six deaths. Of eight cases of stone in the ductus choledochus not operated on four died, while of six patients who were only incompletely operated on all died.

Professor TH. ROVSING (Copenhagen) said that in several cases in which a choledochotomy proved too difficult he had done a sort of choledocho-lithotripsy, gently crushing by means of two fingers the stones in the bile duct, so that the fragments might be pushed down into the intestine. Where this procedure did not prove efficient he had sometimes succeeded in forcing the stones from the bile duct back into the gall-bladder by grasping the duct firmly below the stone between two fingers and exercising a pressure in the direction upwards. In such cases it was, of course, necessary to prevent the stone from impacting itself in the hepatic duct.

Professor ROVSING communicated a note on the Antiseptic Properties of Nitrate of Silver. For many years he had been constantly using it and now preferred it to all other antiseptics in the overwhelming majority of circumstances where antiseptics were needed. His reasons for doing so were that, though not poisonous to the human body, it was one of the strongest antiseptics known, and that it retained its bactericidal power also when converted into albuminate or chloride of silver. He recommended it particularly for the impregnation of gauze for dressings. It had enabled him to do away entirely with iodoform gauze in his hospital—e.g., he always used "lapis-gauze" for replenishing the Mikulicz bag in laparotomies. "Lapis-catgut," the preparation of which was exceedingly simple, was absolutely safe and trustworthy as to sterility, agreeable to handle and tie, and, as tests had proved, stronger than raw catgut, while all other methods of preparing catgut lessened its strength. Moreover, "lapis-catgut" kept its strength for years, while iodine-catgut soon became brittle.

Professor TSCHERNING (Copenhagen) said that he also thought nitrate of silver an excellent antiseptic. It had been in use as such for many years at the Kommune Hospital of Copenhagen. The preparation of nitrate of silver catgut had been published years ago by a Norwegian colleague.

On August 9th an interesting discussion on the Treatment of Inflammatory Diseases of the Adnexa Uteri was opened by Professor OTTO ENGSTRÖM (Helsingfors) and Professor JOH. KAARSBERG (Copenhagen). While Professor ENGSTRÖM gave a lucid exposition of the different methods of treatment, operative and not operative, Professor KAARSBERG contributed to the Congress a conspectus of 289 cases on which he had operated. Perhaps the most important feature about his communication was the information it contained about the after-history of nearly all his operation cases. Professor KR. BRANDT (Christiania), Professor F. WESTERMARK (Stockholm), and Dr. H. FORSSNER (Stockholm) took part in the discussion.

Professor TSCHERNING demonstrated an original operation which he had devised for the removal of malignant new growths in the lower part of the hypopharynx and the adjoining part of the gullet. In contra-distinction to all other operations it spared all important nerves and vessels and gave an excellent view of the diseased region, far better than a lateral or subhyoid pharyngotomy. An incision was made in the middle line of the anterior surface of the neck, a low tracheotomy performed, whereupon the anterior wall of the larynx, with the hyoid bone and the uppermost rings of the trachea, was divided in the middle line. After inspection of the anterior of the larynx Professor Tscherning divided also the posterior wall of the larynx and the upper part of trachea in the middle line, and by inserting retractors on the pharyngeal and œsophageal surface of the severed cartilages he could with the greatest ease inspect and, if needed, excise every wrinkle and fold of the mucous membrane of the hypopharynx and uppermost part of the gullet. In the cases operated on the bleeding had been practically *nil*, this being one of the advantages of the operation. Moreover, it spared the vocal apparatus, at the same time giving just as good a view of the diseased region as if a laryngectomy had been performed.

The application of X Rays to the Service of Surgery formed the theme of three communications. Professor JOHN BERG (Stockholm) demonstrated a series of photographs of Stones in the Urinary Bladder and related how in more than one case the x rays had been of inestimable value to him. He had in one case emptied the bladder of stones and had assured himself of the thoroughness of the operation by searching it carefully with his finger. Nevertheless, the patient's symptoms continued and on the photograph there appeared a shadow of a stone. A second operation at first failed to locate the stone, but after much searching he succeeded in finding a diverticulum with so narrow an opening that he could not get a finger-tip through it; the stone lay in this diverticulum. In other cases the x rays had helped him to diagnose prostatic stones.

Dr. O. BORCHGREVINK (Christiania) illustrated by x ray pictures the results of his ambulatory extension treatment of fractures of the upper limb. His apparatus was very simple, using only rubber tubing as extending force. The results, also in the difficult cases of supracondylar fracture of the humerus, were above all praise.

Dr. P. TETENS HALD (Copenhagen) showed a series of Roentgen pictures demonstrating the great help that might be derived from them in the diagnosis of affections of the accessory sinuses of the nose. While the healthy sinuses were clear and had distinct outlines, the diseased ones appeared blurred or seemed to have entirely disappeared. That the sinuses were present even in the last-mentioned cases was proved by the photographs showing probes introduced into them. Photographs of affections of all the accessory sinuses were shown and some interesting cases related illustrating the value of the method in diagnostic difficulties.

(To be continued.)

SECOND INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

THE EXHIBITION.

IN connexion with the Second International Congress on School Hygiene an exhibition of school buildings and furnishing appliances was held in the central hall and adjoining rooms of the University of London. The exhibition was wide in scope and members of the Congress and others took the keenest interest in the various exhibits which illustrated recent progress in educational methods not only in this country but in Austria, Denmark, France, Germany, Holland, Italy, Spain, Sweden, and Switzerland.

Many of the stalls necessarily embraced exhibits which under a scientific classification would naturally fall under different categories, but for the purposes of this notice the exhibits may be conveniently divided into two sections, the first dealing with buildings, and including materials of construction and sanitary arrangements, and the second dealing with furnishing and equipment, including teaching and technical appliances.

Under the heading of

School Buildings

may be included the numerous and useful loan collections of drawings, plans, and designs. One of the chief attractions was the collection of exhibits from schools under the control of the London County Council. The details of medical supervision were admirably shown by means of charts and diagrams, while the plans and elevations of the different types of schools under the control of the Council gave the visitor to the exhibition an excellent idea of the work that is being done by this body. Several interesting exhibits were shown by provincial schools and the Scottish section illustrated the keen interest that is taken in education north of the Cheviots. One object in the English loan collection which bore no label, but which was apparently intended to illustrate to children a lesson on the care of the baby, was a cradle containing a large doll. Though roughly made the

cradle admirably suited the purpose for which it was intended and we should like to see such an article a prominent feature of every elementary school in the kingdom. The carpentry of such an article might well form part of the teaching for boys, and poor people through their children might thus become acquainted with a cheap and easily made cradle which if put into practical use might lessen the appalling number of cases of overlying.

Among exhibits competing for medals was an excellent type of portable school pavilion erected in the grounds by Messrs. Christoph and Unmack (a German firm with London representatives at 31, Queen-street, E.C.). This pavilion, measuring 32 feet by 70 feet, contained two class-rooms, a physician's room, and a corridor. This type of pavilion, which has been registered under the name of the Doecker, is largely used in Germany. The exhibit, which obtained a silver medal, was equipped with hygienic school furniture made by Messrs. Mueller of Berlin. Messrs. Humphrey of Knightsbridge, London, S.W., showed illustrations of various kinds of portable iron buildings, and the Ducker Company of Kingsway, London, W.C., showed a school-house measuring 22 by 33 feet which was erected in eight days "without nail or screw." The British Challenge Glazing Company, Limited, Bank Chambers, London, W.C., showed samples of its patent flooring for hospital and general use for which it claims, among other things, that it is uncrackable, fire-resisting, and damp proof. The same firm showed a patent glazing which seems to possess genuine merits. The Plastom Asbestos Flooring Company, Bunhill-row, London, E.C., also showed a fire- and vermin-proof flooring, while the British Doloment Company, Caxton House, Westminster, exhibited samples of its patent flooring which is said to be impervious to acids and oils. The Limmer Asphalte Paving Company, 2, Moorgate-street, London, E.C., showed specimens of paving blocks and other examples of the application of asphalt. The Chaddock Mechanical Window Company, 22–25, Cornhill, Liverpool, certainly deserved the silver medal which it obtained for its exhibit. Running through the centre of the window perpendicularly is a metal rod which fits into sockets at the top and bottom of the window frame. The window thus turns about a vertical axis and can be set at any angle according to the direction of the wind, while another advantage, and not a small one, is that both sides of the window can be cleaned from the inside. The Combined Collapsible Ventilator Company, 85, Duke-street, Liverpool, also showed an improved window and a ventilator which can be adapted to existing sashes with a view to solving the problem of ventilation without draught. Ozonair, Limited, 27, Chancery-lane, London, showed the different forms of their apparatus as applied to ventilation and various manufacturing processes. Messrs. Cassels, Park-place, Stirling, N.B., who have been awarded a silver medal, showed their Clarefont wash-basin with screw-down taps, having an inner basin in which water is allowed to flow and overflow during the time of ablution in schools, a clean supply of water being thus maintained for each pupil. Experience has shown that this system is an economical one. The same firm also showed a "one each" towel distributor for providing a separate towel to each scholar without danger of its being taken away or mislaid. Messrs. Pryke and Palmer, 40, Upper Thames-street, London, E.C., exhibited a large selection of school ironmongery as supplied to the London County Council. Interesting features of their exhibit were a portable hospital bath of steel covered with porcelain enamel and a patent window fastening for asylums and other institutions whereby a window-sash can be prevented from being opened to a larger degree than an attendant may desire. The Ajax Sanitary Company, 22, Ely-place, London, W.C., exhibited their various basins and sink fittings, which have recently been described in THE LANCET, when they were shown at the annual exhibition of the British Medical Association.[1] The exhibit of the British Sanitary Company, 341, Bath-lane, Glasgow, for which they obtained a silver medal, consisted of self-acting earth closets suitable for country schools. A very large collection of urinals, closets, and latrines, several of an excellent pattern, were shown by the Leeds Fireclay Company, 2 and 3, Norfolk-street, London, W.C., and Messrs. J. Duckett and Sons, Limited, Burnley, Lancs, had a similar exhibit. For their overflow lavatories they obtained a silver medal. Messrs. John Knight and Co., 24, Gertrude-street, Chelsea, who obtained a silver medal, displayed a large selection of drainage fittings in stoneware, and the Berkefeld Filter Company, 121, Oxford-street, London, W., showed a wide range of their well-known filters. Messrs. Candy and Co., Limited, 87, Newman-street, Oxford-street, London, W., showed their excellent stoves, "The Devon Fire," which were commended in the report of the experiments carried out under the joint control of the Commissioner of Works and the Coal Smoke Abatement Society (*vide* THE LANCET, May 19th, 1906, p. 1414). The Gas Light and Coke Company, Horseferry-road, Westminster, had an interesting exhibit, as did also Messrs. Colbran and Co., 10, Mortimer-street, London, W., the "Heaped" Fire Patent, and Messrs. A. E. Podmore and Co., 32, Charles-street, Hatton-garden, London, E.C., who showed their dust-proof Bunsen burner. The Wenham Light Company, 90, Great Russell-street, London, W.C., also exhibited their new pattern inverted mantle lamps.

[1] THE LANCET, August 17th, 1907, p. 458.

Furnishing and Equipment.

The two important exhibits of the Tintometer, Limited Colour Laboratories, Salisbury, and of Messrs. E. J. Arnold and Sons, Limited, Leeds and Glasgow, may be conveniently referred to under this heading. The first-mentioned firm showed apparatus and diagrams for class demonstration, together with a colour nomenclature for the precise definition of any colour. The tintometer has been applied to many purposes, industrial and scientific, and in particular has been used by Dr. George Oliver in blood examination. (Dr. Oliver's apparatus, the hæmoglobinometer and the hæmocytometer, were referred to by him in the Croonian lectures of 1896, and described in THE LANCET of Jan. 23rd, 1897, p. 251, and March 9th, 1901, p. 711.) The particular form of tintometer shown at the exhibition is adapted for educational purposes and consists of three glass standard scales in the colours red, yellow, and blue. These scales are graded into equal units, which are in colour equivalent with each other, and are used in connexion with a set of revolving colour discs, transparency frames, and diagrams. The apparatus is used not only for teaching children colours but also for testing their vision for colour blindness. Messrs. Arnold and Sons are educational publishers and also exhibited a large collection of their books and educational appliances for use in physiological and hygienic teaching, including anatomical diagrams, charts, and their well-known "Food Values Diagrams." The chief feature of their stall was, however, "The Spectrum Colour Scheme," which has been worked out by Mrs. Florence Kirk, M.R.San.I., the head-mistress of the Belle Vue Council School, Bradford. This scheme embraces a system of teaching in which improved kindergarten methods are used in conjunction with systematic instruction in the recognition of the prismatic colours. In connexion with this scheme the firm supplies an excellent prism at a low price, and paper, wool, paints, crayons, and chalks of a practically uniform standard of colour. It is worthy of note that the instruction has been so graded that no undue strain is put upon the eyes of young children. The Educational Supply Association, 42, Holborn Viaduct, London, E.C., among other educational appliances, showed some excellent adjustable desks, notably the "Farringdon," which is so designed that both desk and seat can be adjusted to suit pupils of any height. This is an important consideration when the ages of pupils vary to any great extent. The adjustable desks and laboratory fittings of the Bennett Furnishing Company, 47, Glengall-road, Peckham, London, S.E., also deserve notice. Messrs. Thomas J. Syer and Co., of 45, Wilson-street, Finsbury, London, E.C., had a very interesting collection of fittings and tools for technical schools and laboratories. Particularly noteworthy was their exhibit of metal-working tools and bench in connexion with "hand and eye training." Messrs. Harbutt, Bathampton, Bath, makers of the well-known plastic paste, "Plasticine," had an interesting exhibit of this substance, which has many uses beside modelling, such as the making of temporary cells for microscopic purposes, and so forth. Messrs. Merritt and Co., 8, White-street, Moorfields, London, E.C., exhibited their steel lockers for use in schools, and the "England Works," of Leeds, their excellent cloak-room fittings. Messrs. Newton and Co., 3, Fleet-street, London, E.C., showed their optical lanterns, and Messrs. Fletcher, Russell, and Co. a selection of their well-known furnaces, blow-pipes, and various laboratory appliances. Messrs. Spencer, Heath, and George, Limited, Goswell-road, London, E.C., showed a completely

equipped educational gymnasium as applied to Ling's Swedish system and a collection of anthropometric apparatus.

Miscellaneous.

Among the miscellaneous exhibits may be mentioned the oxygen bath of the Aeosan Company, 102, Charlotte-street, Birmingham, which is described on p. 517 of this issue. The "Sanitas" Company, Limited, Locksley-street, Limehouse, London, E., showed their various specialities, as did also Jeyes' Sanitary Compound Company, Limited, 64, Cannon-street, London, E.C.; and Messrs. Newton Chambers, Limehouse, E., exhibited their "Izal" toilet and other preparations. Messrs. N. and N. C. Bletchley, anatomical and orthopædic boot manufacturers, 89, Northgate-street, Gloucester, showed a wide selection of boots and shoes for both normal and abnormal conditions of the foot and a special bandage for weak ankles. A boot made by them with a flexible sole for ordinary use should be both useful and comfortable in cases of tender feet—most difficult cases to remedy as many surgeons know. Mr. D. H. S. Brown, 72, Hartfield-road, Wimbledon, among other things, exhibited pillow-slips and sheets the chief feature of which is a tuck running across the fabric in order to distinguish the two sides, with the object of insuring that one side only shall always be kept next the body. He also exhibited an improved support for ladies' garments. Among the publishers who exhibited books on physiology and hygiene were Messrs. Macmillan and Co., St. Martin's-street, London, W.C., and Messrs. Constable and Co., 10, Orange-street, Haymarket, London, S.W.

MEDICINE AND THE LAW.

The Verdict "Felo de se."

THERE are numerous cases of persons slaying themselves as to whom there is no evidence adduced to the inquest jury of unsoundness of mind, either recent or remote. Public sentiment, however, has rendered a formal verdict "that the deceased killed himself during a state of temporary insanity" almost invariable. Following what appears to be the present-day custom of coroners, Dr. W. Wynn Westcott has usually been observed to conclude a short summing up in these cases with the question: "Will you say that this act was done during a state of temporary insanity?" During a recent week it appears that this coroner has varied his practice and has concluded by addressing the jury in these terms, "As no evidence of insanity has been laid before you are you of opinion that the deceased did wilfully kill himself and hence is *felo de se?*" In five cases during one week in three different parishes have inquest juries without the slightest moral pressure beyond this simple suggestion brought in verdicts of *felo de se*. The cases were all men. Three were at the Hackney court, all having been found in the River Lea, one, aged 74 years, afflicted with a chronic illness and *tædium vitæ;* a second, aged 62 years, suffering from poverty and lack of work; and a third, aged 53 years, a drunkard who had quarrelled with his family; one was at the Shoreditch court, his age being 51 years, he was a drunkard on the verge of delirium tremens when he took hydrochloric acid; and the last case was at Bethnal Green, an ex-prisoner, aged 38 years, who could not find work, and who took oxalic acid. The lay press, in commenting on these facts, has referred in several places to the incident as "a return to more blunt but more truthful verdicts." Probably there is a better, because truer, explanation. The inquest juries concerned were composed wholly of men of a moderate standard of education. Among such the final suggestion in the summing-up of the facts and probabilities of the case made by the president of the court would have a great influence in their minds when immediately afterwards they considered the terms of the verdict. Suggestion must have a great influence over jurymen whose knowledge of pathological conditions and legal technicalities is very small, if it exists at all; hence much may depend upon the bias of an individual coroner as to how an inquest jury will frame its verdict.

Kaloo Nuts sold for Human Food.

A trader in the City, named Brinkley, who had dealt in nuts for 16 years, recently made an experiment of a dangerous kind and may be congratulated that no worse result ensued for himself than a fine of £5 at the Tower Bridge police-court. According to his story, in telling which he appears to have been perfectly straightforward, he was introduced by a man, whom he described as an old traveller, to a ship's captain who had some nuts to sell of a kind not usually seen in England and he bought some. He ate several himself without any untoward result, and without any further precaution put them within reach of the public by disposing of some to a costermonger at the price of 7*s.* 6*d.* per hundredweight. The costermonger advertised them on his barrow as "the king of nuts, Kaloo, from South America," and found sufficient customers to cause several children to be taken to Guy's Hospital suffering from poisoning. One of these, who had only eaten two nuts, nearly died, and two others gave evidence at the police-court to the effect that they had eaten six and seven respectively before being taken ill. Investigation by the police followed, the costermonger was traced, and the merchant who supplied him was summoned. Mr. Alfred Long, chief sanitary inspector to the borough of Southwark, gave as the result of his inquiries at Kew and elsewhere that kaloo nuts come from Central China where oils used for varnishing are extracted from them, which oils have poisonous qualities. He could find no trace of any importation of them to England during the last 50 years among firms engaged in the fruit trade in the City. Mr. G. Millson, medical officer of health of the borough of Southwark, had examined the nuts and gave evidence that apart from their inherent unwholesome qualities the nuts in question were rancid and in such a condition as in any case would render them unfit for human food. In fining Mr. Brinkley, who had sold them to the costermonger, Mr. Chapman made the observation, from which none will dissent, that to put a novelty upon the market with the intention that it should be eaten involved the responsibility of first ascertaining whether it was fit for human food or not. Mr. Brinkley is reported to have said that he had been in the nut trade for 16 years and that this was the first time that he had heard that a nut was unfit for food.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Liverpool.—The population of Liverpool in 1906 was estimated at 739,180. The birth-rate was 32·6 and the death-rate 20·2 per 1000. The infantile mortality amounted to a high figure, 171 per 1000 births, but there was during the year considerable prevalence of measles. Amongst the agents upon which Liverpool relies for the reduction of this infantile mortality are hospital accommodation for infants suffering from measles and whooping-cough, together with special arrangements for the earliest possible notification of births, and a staff of female inspectors. For mothers who are unable to suckle their young a suitable food is provided which is "within the reach of all." Typhus fever was introduced into Liverpool on three separate occasions during 1906, the introducers being Russian emigrants. The total number of cases occurring was 52 and the disease still claims some 20 deaths annually. Dr. E. W. Hope speaks appreciatively of the system of the voluntary notification of pulmonary tuberculosis which has now been in vogue in Liverpool for several years. During 1906 there were 1842 cases notified, a very considerable number when regard is had to the fact that the notification is voluntary and that notifications are only asked for in cases where, in the opinion of the attending medical practitioner, a useful purpose is likely to be served by visits from the sanitary staff of the municipality. As regards the control of milk-borne tuberculosis, to which subject the recent report of the Royal Commission on Tuberculosis has directed public attention in an accentuated form, energetic steps are being taken in Liverpool under the Liverpool Corporation Act, 1900, which confers powers upon officers of the corporation to visit farms and to examine cows in districts outside Liverpool from which milk is introduced into the city. The Act also enables the officers to take samples of milk at the railway stations. During 1906 tubercle bacilli were apparently discovered in milk from Cheshire, Lancashire, Staffordshire, Shropshire, and North Wales. Dr. Hope reports that both the farms and the cows in the country districts are markedly inferior to those within the city, and he furnishes photographs showing the deplorable condition of some of the country cowsheds as regards light, ventilation, cleanliness, and cubic space. It will be a source

of satisfaction to Londoners to learn that the London County Council has within the last few days practically obtained powers similar to those comprised in what are sometimes spoken of as the "Manchester Milk Clauses." As regards the causation of infantile diarrhœa and kindred ailments Dr. Hope has found as the result of investigations carried on over several years that amongst infants under three months of age either wholly or partially fed during the summer on artificial foods the deaths are 15 times as great as amongst an equal number of children fed upon breast milk, and although this proportion diminishes as the months of the first year of life advance the death-rate amongst those fed upon artificial foods are always much higher than upon those suckled by the mother. The municipal milk depôt continues to give satisfaction, but we are glad to see that its employment is regarded as a *pis aller*, the milk being intended solely for such infants as cannot be suckled by their mothers. As Dr. Hope states, there must be no misunderstanding upon this point, and the mother's milk must always be insisted upon where maternal suckling is practicable. The facts as regards the depôt are thus presented: "Out of 7520 infants coming very promiscuously to the depôts at varied ages and in conditions of health below the average the mortality was 96 per 1000 as against 171 per 1000 for the whole city, and 110 to 113 for the best districts, and 231 to 246 for the worst." We assume that the 7520 infants were all below one year of age. With respect to the subject of school hygiene it is satisfactory to learn that Dr. Hope has succeeded in obtaining the appointment of an additional assistant medical officer of health, who will, we gather, devote himself largely to this branch of public health.

County Borough of Stockport.—Dr. Meredith Young, in urging the town council of the borough to undertake a system of medical inspection of the school children in the local schools, refers to the experience of New York as regards the enormous percentage of defective children. Of 99,240 children examined in the borough of Manhattan from March 27th, 1902, to Sept. 29th, 1906, as many as 65,741, or some 65 per cent., were said to be in need of medical treatment. Some 30 per cent. manifested vision defects and 39,778 needed attention to their teeth. As many as 38,273 children are stated to have had swollen glands in the neck as the result of some present or past trouble in the throat, nose, ear, or some abnormal constitutional condition. Enlarged tonsils were found in 18,131 children, while 10 per cent. had adenoids. Heart disease was present in 1659 children and lung disease in 1039. This is a remarkable record and possibly the standard adopted in certain particulars was somewhat high, but Dr. Meredith Young will, we trust, succeed in securing medical inspection of the Stockport children.

County Borough of Oldham.—At the beginning of 1906 the Oldham town council adopted the voluntary notification of pulmonary tuberculosis for a trial period of six months, but we doubt whether this is long enough to enable any useful experience to be gained as to the utility of the measure. Doubtless some of the practitioners will wish to see in what way the officials of the health department deal with the information received; whether, for instance, it is used to help the patients or whether to place restrictions upon them which will render it difficult for them to obtain a livelihood and so, by lowering the resistance of the remainder of the family, encourage the development of an already latent infection or of a fresh infection. A longer limit than six months should in any case be fixed. We are glad, however, to note that in the absence of notification the disease, as measured by the death-rate, is undergoing a steady fall in Oldham.

County Borough of St. Helens.—Dr. J. J. Buchan states in his current annual report that use is now being made of an empty pavilion at the isolation hospital for the education of cases of pulmonary tuberculosis much on the same lines as the practices adopted at Manchester, Brighton, and other places. During 1906 42 patients were admitted, and of these 34 were discharged improved. The remaining eight died. The average duration of stay was 41 days. Voluntary notification of this disease has been in operation in St. Helens since 1899, and, on the whole, the medical officer of health is well pleased with the results.

County Borough of Derby.—Voluntary notification of pulmonary tuberculosis has been in operation in Derby since 1902, and Dr. M. J. Howarth reports that all cases are being notified which in the opinion of the attending physician should be visited by the health officers. In addition to the usual instructions based upon the belief that the chief cause of the disease is infection from person to person the sanitary condition of all the invaded houses is gone into, more especially as regards the presence or absence of thorough ventilation.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8578 births and 3625 deaths were registered during the week ending August 17th. The annual rate of mortality, which had been equal to 11·9, 11·7, and 11·8 per 1000 in the three preceding weeks, was again 11·8 in the week under notice. During the first seven weeks of the current quarter the death-rate in these towns has averaged 12·1 per 1000, the rate in London during the same period being 11·9 per 1000. The lowest death-rates in the 76 towns last week were 4·1 in Croydon, 4·2 in Willesden, 5·8 in Hornsey, and 5·9 in Devonport; the highest rates were 17·1 in Bolton, 17·2 in Birkenhead, 17·7 in Great Yarmouth, 17·8 in Merthyr Tydfil, and 18·7 in Stockton-on-Tees. The 3625 deaths in the 76 towns showed a slight decline from the number in the preceding week and included 407 which were referred to the principal epidemic diseases, against 362 and 378 in the two preceding weeks; of these, 130 resulted from diarrhœa, 102 from measles, 92 from whooping-cough, 38 from diphtheria, 23 from scarlet fever, and 22 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered last week in Croydon, Tottenham, Leyton, Middlesbrough, Stockport, or in 14 other of the 76 towns; the annual rate from these diseases, however, ranged upwards to 3·9 in Bootle and Stockton-on-Tees, 4·9 in Walsall, and in 6·1 in Cardiff. The deaths from diarrhœa, which had risen from 39 to 104 in the five preceding weeks, further increased last week to 130, the death-rates from this disease ranging upwards to 1·3 in Sheffield, 1·5 in Warrington, 1·6 in Wallasey, 1·7 in Rotherham, and 3·1 in Bootle. The fatal cases of measles, which had declined from 142 to 94 in the four preceding weeks, rose again last week to 102; the death-rate from this diseases was 1·4 in Merthyr Tydfil, 1·5 in Blackburn, 1·7 in Derby, 3·0 in Stockton-on-Tees, 3·8 in Walsall, and 4·2 in Cardiff. The deaths from whooping-cough, which had been 86 and 85 in the two preceding weeks, rose again last week to 92, and caused death-rates ranging upwards to 1·1 in Newcastle-on-Tyne and 1·2 in Walthamstow. The 38 fatal cases of diphtheria showed a slight decline from the number in the previous week; the highest death-rate last week from this disease was 1·5 in Warrington. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital on Saturday, the 17th inst., was 3669, against numbers increasing from 2658 to 3660 on the 14 preceding Saturdays; 430 new cases were admitted during the week, against 557, 419, and 466 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 136, 137, and 139 in the three preceding weeks, declined to 129 last week, but were slightly in excess of the corrected average number in the corresponding period of the five years 1902–06. Three deaths were attributed to cerebro-spinal fever in London last week, against one in the previous week. The causes of 38, or 1·0 per cent., of the deaths in the 76 towns' last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, Leicester, and in 47 other of the 76 towns; three uncertified deaths were registered in Manchester, three in Rochdale, and two each in London, Liverpool, Birmingham, Sheffield, Preston, South Shields, Burnley, Northampton, Merthyr Tydfil, King's Norton, and Hanley.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 12·8 and 13·8 per 1000 in the two preceding weeks, declined again to 12·6 per 1000 in the week ending August 17th, but exceeded by 0·8 per 1000, the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 8·7 in Leith and 11·6 in Edinburgh, to 14·7

in Paisley and 19·5 in Perth. The 436 deaths in these towns showed a decrease of 43 from the number in the previous week, and included 52 which were referred to the principal epidemic diseases, against 66, 60, and 75 in the three preceding weeks. These 52 deaths were equal to an annual rate of 1·5 per 1000, which slightly exceeded the mean rate during the same period from the principal epidemic diseases in the 76 large English towns; they included 18 which were referred to whooping-cough, 15 to diarrhœa, 13 to "fever," four to measles, one to scarlet fever, and one to diphtheria, but not any to small-pox. The deaths from whooping-cough, which had been 12 and 30 in the two preceding weeks, declined again last week to 18, of which 10 occurred in Glasgow, four in Edinburgh, and two in Leith. The fatal cases of diarrhœa, which had been 21 and 22 in the two previous weeks, decreased to 15 during the week under notice, and included eight in Glasgow, three in Dundee, and two in Aberdeen. The deaths referred to different forms of "fever," which had been 15, 15, and 13 in the three preceding weeks, were again 13 last week; they included seven cases of cerebro-spinal meningitis in Glasgow, two in Edinburgh, and one in Paisley. The fatal cases of measles, which had been six in each of the two previous weeks, declined last week to four, of which two occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 68 and 55 in the two preceding weeks, further decreased to 48 last week, and were 20 below the number in the corresponding period of last year. The causes of 15, or 3·4 per cent., of the deaths registered in the eight towns last week were not certified; in the 76 English towns the proportion of uncertified deaths did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 21·2, 18·0, and 15·7 per 1000 in the three preceding weeks, rose again to 17·8 per 1000 in the week ending August 17th. During the first seven weeks of the current quarter the death-rate has averaged 19·1 per 1000, the rates during the same period being 11·9 in London and 12·1 in Edinburgh. The 133 deaths of Dublin residents registered during the week under notice were 15 in excess of the number in the previous week, and included 17 which were referred to the principal epidemic diseases, against 12, 15, and 13 in the three preceding weeks; of these, seven resulted from measles, six from diarrhœa, three from whooping-cough, and one from "fever," but not any from small-pox, from scarlet fever, or from diphtheria. These 17 deaths were equal to an annual rate of 2·3 per 1000; the death-rate last week from the principal epidemic diseases did not exceed 1·4 in London and 1·2 in Edinburgh. The fatal cases of measles, which had been three, six, and five in the three preceding weeks, rose to seven last week. The deaths from diarrhœa, which had been four, three, and five in the three preceding weeks, further increased to six in the week under notice; while the fatal cases of whooping-cough numbered three, against four, four, and one in the three preceding weeks. The 133 deaths from all causes in Dublin last week included 36 of children under one year of age and 28 of persons aged upwards of 60 years; both these numbers were slightly in excess of the corresponding figures for the previous week. One death from violence and two inquest cases were registered; and 52, or 39·1 per cent., of the deaths in Dublin last week were not certified; the percentage of uncertified deaths in London did not exceed 0·2, while in Edinburgh the proportion was 1·3 per cent. The 101 deaths in Belfast included six which were attributed to cerebro-spinal fever.

VITAL STATISTICS OF LONDON DURING JULY, 1907.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 8·7 per 1000 of the population, estimated at 4,758,218 persons in the middle of the year; the rates in the three preceding months were 6·9, 7·1, and 7·2 per 1000 respectively. The lowest rates last month were recorded in the Cities of London and Westminster, and the boroughs of Hampstead, Chelsea, and Woolwich; and the highest rates in Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Deptford. No case of small-pox was notified in London during the month. The prevalence of scarlet fever showed a marked increase over that recorded in other recent months; this disease was proportionally most prevalent in Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, Deptford, and Woolwich. The Metropolitan Asylums hospitals contained 3578 scarlet fever patients at the end of last month, against 2586, 2777, and 2975 at the end of the three preceding months; the weekly admissions averaged 500, against 332, 368, and 390 in the three preceding months. Diphtheria also showed an increased prevalence as compared with the previous month; among the various metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Hammersmith, Poplar, Southwark, Bermondsey, and Greenwich There were 913 diphtheria patients in the Metropolitan Asylums hospitals at the end of last month, against 946, 933, and 806 at the end of the three preceding months; the weekly admissions averaged 140, against 119, 121 and 107 in the three preceding months. Enteric fever was again less prevalent than it had been in other recent months; this disease was proportionally most prevalent in Fulham, Stoke Newington, Hackney, Southwark, and Deptford. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 66, 47, and 57 at the end of the three preceding months, had declined again to 50 at the end of last month; the weekly admissions averaged nine, against 12, nine, and 13 in the three preceding months. Erysipelas was proportionally most prevalent in St. Pancras, Finsbury, Shoreditch, Stepney, Poplar, and Deptford. The 23 cases of puerperal fever notified during the month included three in Lambeth and in Camberwell, and two in Hammersmith, Fulham, Stepney, and Southwark. Of the 17 cases notified as cerebro-spinal fever, four belonged to Islington, three to Battersea, and two to Bermondsey.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the five weeks ending August 3rd the deaths of 5191 persons belonging to London were registered, equal to an annual rate of 11·4 per 1000; in the three preceding months the rates had been 15·8, 14·0, and 12·2 per 1000. The death-rates last month ranged from 6·8 in Hampstead, 8·3 in Lewisham, 8·5 in Woolwich, 8·6 in Stoke Newington, 9·2 in Greenwich, and 9·3 in Hammersmith, to 14·1 in Southwark, 14·4 in Finsbury and in Bermondsey, 14·7 in Poplar, 14·9 in Holborn, and 15·8 in Shoreditch. The 5191 deaths from all causes included 590 which were referred to the principal infectious diseases; of these, 219 resulted from measles, 71 from scarlet fever, 49 from diphtheria, 166 from whooping-cough, nine from enteric fever, 76 from diarrhœa, and none from small-pox, from typhus fever, or from ill-defined pyrexia; in addition to these 590 deaths there were three fatal cases of cerebro-spinal fever, including two in Battersea and one in Stepney. No death from any of the principal infectious diseases was recorded in the City of London; they caused the lowest rates in Paddington, the City of Westminster, Stoke Newington, Greenwich, Lewisham, and Woolwich; and the highest rates in Chelsea, Shoreditch, Bethnal Green, Poplar, Southwark, and Battersea. The 219 fatal cases of measles were 61 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Chelsea, Hampstead, Islington, Shoreditch, Southwark, and Battersea. The 71 deaths from scarlet fever were 28 above the corrected average number; the greatest proportional mortality from this disease was recorded in Hackney, Bethnal Green, Stepney, Bermondsey, and Battersea. The 49 fatal cases of diphtheria showed a decline of 12 from the average number in the corresponding period of the five preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Kensington, Poplar, Southwark, Battersea, and Camberwell. The 166 deaths from whooping-cough were 46 in excess of the corrected average number; the highest death-rates from this disease were recorded in Hammersmith, Fulham Chelsea, Shoreditch, Bethnal Green, and Poplar. Only nine deaths from "fever" were registered last month, against an average of 38 in the corresponding period of the five preceding years; of these nine deaths

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1907.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1907.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,758,218	—	2641	804	—	90	1	23	397	17	3973	8·7	—	219	71	49	166	—	9	—	76	590	1·3	5191	11·4	83
West Districts.																										
Paddington	149,909	—	50	19	—	2	—	—	9	—	80	5·6	—	4	2	—	4	—	—	—	2	12	0·8	150	10·4	78
Kensington	181,842	—	48	30	—	1	—	—	16	—	95	5·4	—	6	—	3	6	—	1	—	3	19	1·1	206	11·8	102
Hammersmith	122,337	—	38	34	—	2	—	2	7	1	84	7·2	—	—	1	1	6	—	—	—	2	10	0·9	109	9·3	55
Fulham	166,749	—	37	34	—	6	—	2	12	—	91	5·7	—	8	1	2	8	—	1	—	5	25	1·6	174	10·9	85
Chelsea	74,857	—	14	15	—	1	—	—	6	1	37	5·2	—	11	—	1	6	—	—	—	—	18	2·5	96	13·4	139
City of Westminster	172,219	—	33	17	—	3	—	—	8	—	61	3·7	—	3	1	—	3	—	—	—	4	11	0·7	170	10·3	69
North Districts.																										
St. Marylebone	127,718	—	55	17	—	2	—	1	11	1	87	7·1	—	5	2	1	5	—	—	—	2	15	1·2	139	11·3	36
Hampstead	91,137	—	22	10	—	2	—	—	4	—	38	4·3	—	6	—	—	1	—	—	—	1	8	0·9	59	6·8	60
St. Pancras	236,763	—	90	30	—	3	—	1	27	—	151	6·7	—	12	4	2	8	—	—	—	—	26	1·1	246	10·8	88
Islington	347,017	—	108	51	—	10	—	1	29	4	203	6·1	—	24	6	2	9	—	1	—	8	50	1·5	384	11·5	81
Stoke Newington	53,613	—	20	6	—	2	—	—	1	1	30	5·8	—	1	—	1	1	—	—	—	1	4	0·8	44	8·6	123
Hackney	232,993	—	162	36	—	8	—	—	22	1	229	10·2	—	7	6	2	3	—	1	—	4	23	1·0	244	10·9	74
Central Districts.																										
Holborn	55,134	—	21	5	—	1	—	1	5	—	33	6·2	—	2	1	—	2	—	—	—	1	6	1·1	79	14·9	71
Finsbury	96,732	—	56	20	—	3	—	—	13	—	92	9·9	—	6	—	—	4	—	—	—	2	12	1·3	134	14·4	63
City of London	20,310	—	8	2	—	—	—	—	—	—	10	5·1	—	—	—	—	—	—	—	—	—	—	—	24	12·3	—
East Districts.																										
Shoreditch	115,662	—	65	15	—	2	—	—	16	—	98	8·8	—	10	1	—	10	—	—	—	8	29	2·6	175	15·8	114
Bethnal Green	130,831	—	141	27	—	2	—	—	14	1	185	14·7	—	8	6	—	8	—	—	—	1	23	1·8	169	13·5	107
Stepney	308,923	—	404	64	—	8	—	2	42	—	520	17·6	—	3	8	4	14	—	2	—	6	37	1·2	369	12·5	98
Poplar	171,086	—	121	38	—	2	—	1	19	1	182	11·1	—	7	1	7	14	—	—	—	2	31	1·9	241	14·7	116
South Districts.																										
Southwark	209,781	—	179	49	—	7	—	2	21	—	258	12·8	—	28	4	3	3	—	—	—	7	45	2·2	283	14·1	89
Bermondsey	128,263	—	115	31	—	4	—	—	10	2	162	13·2	—	2	5	1	5	—	1	—	2	16	1·3	177	14·4	86
Lambeth	318,538	—	166	42	—	2	1	3	21	1	236	7·7	—	16	4	4	8	—	1	—	10	43	1·4	342	11·2	84
Battersea	181,736	—	100	25	—	1	—	1	15	3	145	8·3	—	16	4	3	7	—	—	—	1	31	1·8	179	10·3	85
Wandsworth	281,419	—	131	50	—	4	—	1	12	—	198	7·3	—	9	4	2	9	—	1	—	—	25	0·9	280	10·4	73
Camberwell	277,059	—	161	40	—	4	—	3	21	—	229	8·6	—	16	5	9	5	—	—	—	2	37	1·4	280	10·5	72
Deptford	116,510	—	95	23	—	6	—	1	13	—	138	12·4	—	5	2	—	5	—	—	—	2	14	1·3	116	10·4	75
Greenwich	107,222	—	68	34	—	1	—	—	8	—	111	10·8	—	2	1	—	4	—	—	—	—	7	0·7	95	9·2	68
Lewisham	152,532	—	35	25	—	—	—	—	3	—	63	4·3	—	1	2	1	4	—	—	—	—	8	0·5	122	8·3	63
Woolwich	129,338	—	98	15	—	1	—	1	12	—	127	10·2	—	1	—	—	4	—	—	—	—	5	0·4	105	8·5	69
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Including membranous croup.

two belonged to Stepney and one to each of seven other boroughs. The deaths from diarrhœa numbered 76 last month, against an average of 555 in the corresponding period of the five years 1902–06; the greatest proportional mortality from this disease occurred in Fulham, the City of Westminster, Islington, Shoreditch, Southwark, and Lambeth. In conclusion, it may be stated that the aggregate mortality from the principal infectious diseases in London last month was 30 per cent. below the average.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 83 per 1000. No death at this age was recorded in the City of London, while among the metropolitan boroughs the lowest rates of infant mortality were recorded in Hammersmith, St. Marylebone, Finsbury, and Lewisham; and the highest rates in Kensington, Chelsea, Stoke Newington, Shoreditch, Bethnal Green, and Poplar.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon Jerome Barry has been placed on the Retired List.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenants are confirmed in that rank: Hugh E. Gotelee, John H. Spencer, Benjamin Johnson, William E. C. Lunn, Arthur H. Jacob, Clarence H. Denyer, Alexander D. Fraser, Archer Fortescue, Geoffrey Carlisle, Howard G. Gibson, Stephen Field, Frederick H. M. Chapman, Henry M. J. Perry, John L. Wood, Frederick T. Turner, Michael P. Leahy, William G. Aviss, John E. M. Boyd, Donald F. Mackenzie, Richard D. O'Connor, Owen R. McEwen, Malcolm O. Wilson, John du P. Langrishe, John C. Hart, Thomas H. Scott, Gerald F. Rudkin, Leopold A. A. Andrews, John H. Gurley, Alfred C. Elliott, William B. Purdon, Francis Casement, Edward M. Middleton, Vincent T. Carruthers, and Harold W. Farebrother.

Captain H. G. F. Stallard has joined at Aldershot for duty at the depôt and school of instruction and Captain A. H. Stafford and Lieutenant H. E. Gotelee have been posted to the Cambridge Hospital for duty. Lieutenant W. B. Purdon and Lieutenant J. C. Hart have also joined at Aldershot and been posted to the Connaught Hospital for duty.

Colonel Arthur W. P. Inman is placed on temporary half-pay on account of ill health (dated August 14th, 1907).

VOLUNTEER CORPS.

Rifle: 3rd Volunteer Battalion the South Wales Borderers: Surgeon-Lieutenant-Colonel J. R. Essex is granted the honorary rank of Surgeon-Colonel (dated June 26th, 1907). 2nd Volunteer Battalion the King's (Shropshire Light Infantry): Charles Botterill Baxter to be Surgeon-Lieutenant (dated July 1st, 1907).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

4th or City of London Bearer Company: Captain A. C. Tunstall to be Major (dated July 25th, 1907).

DEATHS IN THE SERVICES.

Major T. W. A. Fullerton, I.M.S., Bengal, at Lucknow, on August 15th. He entered the service in 1895 and at the time of his death, which occurred from blood poisoning, he was surgeon to the hospital at Bahraich. He held the Kaisar-i-Hind gold medal for public service in India and two medals for service in two frontier campaigns.

Major H. F. Whitchurch, I.M.S., V.C., at Dharmsala, Punjab, India, on August 16th, at the age of 41 years. Major Whitchurch took part in the Lushai Expedition, including the relief of Changsil and Aigal (medal with clasp) and in the operations in Chitral in 1895 (mentioned in despatches and awarded medal with clasp and the Victoria Cross). The act of conspicuous bravery which obtained for him this distinction is officially described as follows. "During the sortie from Chitral Fort at the commencement of the siege Surgeon-Captain Whitchurch went to the assistance of Captain Baird, 24th Bengal Infantry, who was mortally wounded, and brought him back to the fort under a heavy fire from the enemy. Captain Baird was on the right of the fighting line and had only a small party of Gurkhas and men of the 4th Kashmir Rifles. He was wounded on the heights at a distance of a mile and a half from the fort. When Surgeon Captain Whitchurch proceeded to his rescue the enemy in great strength had broken through the fighting line; darkness had set in, and Captain Baird, Surgeon-Captain Whitchurch, and the sepoys were completely isolated from assistance. Captain Baird was placed in a dooly by Surgeon-Captain Whitchurch, and the party then attempted to return to the fort. The Gurkhas bravely clung to the dooly until three were killed and a fourth was severely wounded. Surgeon-Captain Whitchurch then put Captain Baird upon his back and carried him some distance with heroic courage and resolution. The little party kept diminishing in numbers, being fired at the whole way. On one or two occasions Surgeon-Captain Whitchurch was obliged to charge walls, from behind which the enemy kept up an incessant fire. At one place particularly the whole party was in imminent danger of being cut up, having been surrounded by the enemy. Surgeon-Captain Whitchurch gallantly rushed the position and eventually succeeded in getting Captain Baird and the sepoys into the fort. Nearly all the party were wounded, Captain Baird receiving two additional wounds before reaching the fort." Major Whitchurch was also engaged in the campaign on the North-West Frontier of India in 1897–98, taking part in the defence of Malakand, the relief of Chakdara, the action at Landakai, and the operations in Bajaur and in the Mamund country (mentioned in despatches and two clasps). He also took part in the operations in China in 1900 (mentioned in despatches and awarded medal with clasp).

MOIR MEMORIAL FUND.

The following gentlemen have, at the invitation of the council of the Medical College, Calcutta, agreed to serve as members of a committee, with power to add to its number, for the purpose of raising a memorial to the late Major D. M. Moir, I.M.S., professor of anatomy at the Medical College, Calcutta, who died from septicæmia contracted in the execution of his public duties. Subscriptions are invited from his friends and admirers and may be sent to the treasurer. It is hoped that sufficient money will be received to found a prize or to endow a bed, after providing for a tablet and portrait in the College Hospital. Lieutenant-Colonel F. J. Drury, I.M.S., President; Major F. J. Maynard, I.M.S.; Major R. Bird, I.M.S., C.I.E.; Major C. R. Stevens, I.M.S.; Major W. J. Buchanan, I.M.S.; Rai Bahadur Dr. Koylash Chandra Bose, C.I.E.; Rai Bahadur Dr. Devendra Nath Roy; Dr. Suresh P. Sarbadhicary, treasurer, 79/1, Ahmerst-street, Calcutta; Dr. Dwijendra Nath Moitra; Assistant-Surgeon Jotish Ch. Mustafi; and Captain F. P. Connor, I.M.S., and Rai Bahadur Dr. Hira Lal Basu, honorary secretaries, Medical College.

THE NEW DRESSING PACKET FOR THE GERMAN ARMY.

A new packet containing material for the first dressing of a wounded soldier has been served out in the German army. It weighs 25 grammes and measures, in centimetres, 7·4 by 4·5 by 1·9. The envelope, made of impermeable linen, is secured by a knotted string which has to be severed before the packet can be opened. Instructions to this effect are printed on the outside. Each envelope incloses a linen bandage impregnated with corrosive sublimate, four metres long by seven centimetres wide. It is readily divisible into three segments, and midway on each segment there is affixed a compress or pad for application to the wound. The bandage itself is white or grey, but the pads are red. On the inner flap of the envelope there are the following instructions:—

> On no account must the red pad or the wound be touched by the fingers of the operator. Taking hold of the segment of bandage with both hands at the points marked "here" he should stretch it firmly and apply the pad accurately over the wounded part, finishing the process by winding the two ends of the bandage round the injured site where they should be secured by a knot.

A new diagnosis card has also been issued for use on the field of battle. It is about 5¼ inches long by 3¼ inches broad, and is meant to be attached to "the second button of the wounded man's tunic, cloak, or shirt." Each card has two red bands which can easily be torn off. If the patient can walk the bands must be removed; should he require transport one band must be left, but should he be considered "non-transportable" both the bands must remain intact. In one side of the card spaces are left for replies to the following questions: Name, rank, and corps? Wound or disease? Treatment given? Elastic band or tube, where applied? Stimulants administered, time, amount? On the other side the surgeon should add any further particulars he may deem necessary and sign his name. The cards are solely for the use of medical officers.

Surgeon-Lieutenant-Colonel C. R. Kilkelly, C.M.G., house governor and medical superintendent, Officers' Convalescent Home, Osborne, has been appointed a Member of the Fourth Class of the Royal Victorian Order.

Correspondence.

"Audi alteram partem."

THE NEW ADVANCE AT THE INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

To the Editors of THE LANCET.

SIRS,—As a slightly incorrect statement was published it would be as well to explain in some detail the important new move in the matter of school hygiene which was taken at the closing meeting of the recent International Congress.

The permanent international committee, consisting of about 60 members selected from almost every country, has hitherto only met during congresses. Arising out of the question of whether it would not be a proper thing to establish a bureau, with a permanent staff, library and museum, and so on, in some central but neutral spot, such as a Swiss or Dutch town, it was decided, as explained by Dr. Mathieu, Dr. Burgerstein, and Dr. Kerr, that it would probably lead to greater progress if such bureau was not localised, but if each country had its own centre for the diffusion of knowledge and to act as a clearing house in the matter of school hygiene statistics, laws, and regulations. Finally, to supervise in scientific matters and generally to do all that is possible at all times or places to forward the human interests which are bound up in the special lines of knowledge included in school hygiene the international committee has formed a small council.

This council has all the powers of an ordinary committee. It can form subcommittees of experts on special inquiries. The usual committee procedure is to sit round a table and discuss matters, but this council will deal with the various subjects that arise, submitting the different topics by correspondence, collating the answers, and finally making pronouncements in urgent matters after a meeting of the council.

It is obvious that for efficiency such council should be small and yet have in it elements to secure permanence and at the same time possibilities of slow but constant change. This has been done by deciding that it shall consist of the president of the past congress, the president of the congress which has just been held, and the president of the next congress. Nine other members are to be elected, of whom three are to be from the country where the congress was last held and three from the country where it will be held next, three being selected from other lands.

Certain matters, for instance, will almost at once come under the consideration of this council. Such might be quoted as:—

The question of how medical inspection of schools can best be carried out with the maximum of efficiency and minimum of cost.

The question of how far the laws of health can best be imparted to the coming generation so that later they will know how to care for themselves and those dependent on them.

The best systems or methods of physical training for both sexes at various ages.

The feeding of children requiring proper nutrition, so that it shall be done without developing pauperism and with regard to those upon whom the cost falls.

These four matters are being dealt with practically in a great variety of ways, and this council should be able to collect and analyse known facts to show which methods are best for any town or State.

It is obvious that information thus digested will have a very great value politically as well as educationally, and this council may in time come to be officially regarded as quite analogous in matters of school hygiene to that other congress of peace now in session at the Hague.

Yours faithfully,

LAUDER BRUNTON,
President of the Second International Congress on School Hygiene.

JAMES KERR,
E. WHITE WALLIS,
Honorary General Secretaries.

SOME PHYSIOLOGICAL EFFECTS OF HIGH-FREQUENCY CURRENTS IN DISEASE.

To the Editors of THE LANCET.

SIRS,—Dr. J. C. Bowie, in his letter in your issue of August 3rd, p. 318, seems to desire to draw me into a discussion on the nature and methods of measurement of high-frequency currents rather than to make an attempt to criticise my records of the physiological effects of these currents in disease. He propounds some electrical problems which would be interesting if anyone were able to solve them, but which are apt to draw the attention of your readers away from the subject which I wished in my paper to direct their attention to. The problem he asks me to solve, regarding the wattage I am able to obtain, is a puzzle to me as well as to him. The only possible answer meantime is, I suspect, that the term wattage can hardly, with our present knowledge, be applied to high-frequency, so-called, currents. His statements as to the action of these currents on the human body are evidently based on his experience of the ordinary relatively low-tension currents. When we come to speak of high potential and high-frequency currents, however, I think the time has passed for anyone to say what might not be safely applied to the body. Professor D'Arsonval, indeed, is said to have passed a current of three ampères into his body in circumstances where the potential must have been terrific, and with, it is said, no inconvenience. Whilst I should not perhaps have the courage to do this, what right have I to say that I do not believe it to be possible?

It is granted by physicists and is a matter of daily observation that the potential of these currents is enormous; but if Dr. Bowie is familiar with this mode of treatment he should know that when a "current" of 500 milliampères is spoken of it is not meant that anyone can say exactly what this actually means, only that it is the heat equivalent of an ordinary galvanic current of this amount, and that to this extent it corresponds to a current of that amount. If Dr. Bowie can say exactly what it does mean more fully most of us, electricians and electrotherapeutists, will be grateful to him; but this, though most interesting, has little to do with the matter at present in hand. When we speak of 500 milliampères as registered by the thermic milliampèremeter we speak in terms quite intelligible to all workers in this field, since we speak of a standard by which may be tested the validity of my records, because we are using the same instrument and speaking the same language. But, although I have generally, if not always, indicated the amount of current as thus measured which I was employing during my experiments, I have, by intention, avoided going into the question of the different physiological action of differing doses, leaving this and many other points for future study by myself and by others as I have before stated. My investigations since the publication of my paper in THE LANCET are more in the direction of the therapeutic possibilities of varying degrees of frequency of these currents. This also may prove a fruitful field of inquiry.

Dr. Bowie complains of my failing to take note of the importance of voltage in my records. If he refers to No. 1 of the "Questions worthy of consideration as to future investigations," he will see that he has made a mistake here. I know of no previous experiments in this direction. I am uncertain even if anyone had considered this question to any practical extent before I referred to it myself, and so I am at a loss to know why he should think that I inquired to be informed as to the importance of voltage when investigating the physiological effects of these currents in disease. Let me repeat that my object in my paper was to prove mainly that high-frequency currents had a varying effect in disease, not an invariable one, as in health; nay, more, an effect not only differing according to the nature of the disease but differing with the varying condition and environment—mental and physical—of the patient at the time of administration. This is surely sufficiently important and sufficiently in advance of previous researches to make it worthy of criticism without spending time upon first trying to solve some electrical problems associated with high-frequency currents.

Dr. Bowie says that the consideration of five factors is

essential before we can move in the matter—namely, voltage, ampèrage, wattage, time, and frequency. I have already referred to voltage, ampèrage, and frequency, and I have generally, if not always, stated the time; but why wattage as a fifth factor if we already have the voltage and the ampèrage? and what does Dr. Bowie mean by saying that wattage must be based on ampèrage since it is the product of voltage and ampèrage? Again, in auto-condensation, which is the mode of application, I have been considering what authority has Dr. Bowie for saying that little or no current passes through the body, though an apparently high current was being registered in the milli-ampèremeter in series with the body? What means does he suggest for testing this? And let me remind him that no one has said that any current passes through the body. The current is not passing through but passing into and out of the body, and I have shown in my paper that the current loses force and quantity on its way into the body. It is a current in the meter but a capacity in the body. He evidently finds it difficult to get low-tension phenomena out of his mind. We are not dealing with closed circuits here. This very error, however, ought to have prevented him from saying that a body through which a current is passing may be getting almost no current regardless of the current which a milliampèremeter in series with it was registering. When I come to his remarks on the drop of potential observed by me when carrying out my experiments I at first hope that we are now on common ground; and, since I attach considerable importance to this part of my thesis, I should have been pleased to get from him some practical criticism of it. Instead of this, however, what he gives me is a mere theoretical contradiction. So I do join issue with him when he "respectfully submits that this is impossible." Is it possible that he has made this statement without having tried the experiment for himself?

Dr. Bowie states that "no relation exists between the resistance of the body and the tension of the current on the spinthermeter." I have stated as a fact that, whilst this auto-condensation current is being applied, the difference of potential between, say, the hand and the axilla may exceed the equivalent of a spark-gap of two millimetres. Has Dr. Bowie tested this which I have declared to be a fact? If not, he surely might have done so and given us the benefit of his experience. That this difference of potential does not arise from ohmic resistance alone is, I think, true; but I should like to have Dr. Bowie's explanation of it if "resistance bears no relation to the potential difference." Does he think this resistance is a small matter? I have measured it with dry metallic electrodes as used in auto-condensation and found it to be vastly greater than I had suspected to be possible. I fear that much of what follows in Dr. Bowie's letter is too involved for me to be able to follow it. Either he has failed to grasp my meaning or I fail to grasp his. Let me say again, however, that I would rather he had stated not what he thought should be but what he really found to be the case. This is especially to be desired where he disputes the accuracy of my statement as to the fall of potential due to the passage of the current along a copper wire 25 feet long and of low ohmic resistance. He fails to see that mere ohmic resistance, unless enormous in amount, exercises practically no control on these high potential oscillations. Whether distance or the necessary bending of the wire on itself on account of the limited space in my room is the cause of the fall of potential I know not—possibly both may be; but certainly ohmic resistance has here nothing to do with it. Surely Dr. Bowie fails to see that he is giving himself away when he says: "Further, it is necessary that the electrodes be kept at the normal temperature of the body, otherwise no accurate records can be made, and this is particularly the case when observations are being taken regarding the increase of temperature due to these currents"; for if the electrodes had first been warmed to the temperature of the hands the rise in the temperature of the forearm would have been just so much greater, and thus my contention would have been strengthened. My object in recording the temperature of the room and delaying the application of the current in these thermic experiments till from 30 to 40 minutes had elapsed after the patient had been placed on the couch was to secure as much accuracy as possible. Dr. Bowie attempts to reply to my question No. 1 in a very offhand manner. But when he says that his "answer to this is, as the voltage is increased a corresponding fall in current will take place," he is evidently failing to note what I said on this point—namely, that I found from experiment that "the same quantity of current is obtainable from the same apparatus by a different arrangement of solenoid and spark gap, though there might be a different amount of potential difference to earth."

If Dr. Bowie is prepared to apply to the body 400 watts, made up of five ampères at a voltage of 80, all I have to say is that I should not like to be the victim of this experiment. But how, I may ask, is he to obtain a current of five ampères through the body from a voltage of 80 or 100, since, as in the Apostoli treatment, it is difficult to obtain a twentieth part of this current from a voltage not much less? I am thus prepared to challenge his statement, though I am not prepared to have my "body subjected" to the trial, even with the reward of setting the question at rest. Finally, is Dr. Bowie willing to join the scientific investigation committee which I have proposed and which he says he approves of? I trust he is—that is, of course, on the understanding that he has already done some work in high-frequency treatment. In that event some real gain may come out of it.

I am, Sirs, yours faithfully,

Glasgow, August 10th, 1907. SAMUEL SLOAN.

NATIONAL LENDING LIBRARY FOR THE BLIND.

To the Editors of THE LANCET.

SIRS,—Will you kindly insert an appeal on behalf of the above most useful and much needed institution as it is in urgent need of funds to carry on the work? It is practically the only lending library for the blind for the whole of Great Britain. There are 900 direct readers, and about 900 more are reached through various institutions, to which books are sent. There are 40,000 blind persons in Britain! These could all be reached had the library a larger income. Each volume costs 15*s.* to produce. Owing to the bulkiness of the volumes, as a result of the raised type, the space needed for storage is great, and a new building is absolutely required in which the 8500 volumes now in stock can be properly arranged, quickly found, and despatched through the post at "special rates," thanks to the kindness of the Hon. Sydney Buxton, Postmaster-General. The books are printed, some in the "Moon type," the rest in the "Braille type." An annual subscription of two guineas entitles a subscriber to nominate a poor reader who without the solace of books leads a sadly pitiful life in his sightless condition. We need £200 per annum more in subscriptions to carry on the work and far more than that sum in donations to enlarge the necessary premises and extend the usefulness of the lending library. Would that some wealthy man or woman might be moved by pity to purchase a site, build really suitable premises, and provide a fund for the maintenance of the building. The library was opened in 1882 by the late Mrs. Dow and the late Miss Martha Arnold, and was incorporated as a "charitable institution" in 1898. H.R.H. Princess Louise, Duchess of Argyll, is President, the patrons are the Bishop of London, the Bishop of Stepney, the Bishop of Southwark, the Duchess of Marlborough, the Earl of Kilmorey, and other distinguished persons. Full details concerning the library may be obtained from the Secretary, Miss E. W. Austin, National Lending Library for the Blind, 125, Queen's-road, Bayswater, W., to whom cheques and postal orders may be sent.

I am, Sirs, your obliged servant,

August 19th, 1907. JANE B. WHITE.

A CASE OF PYREXIA OF UNCERTAIN ORIGIN.

To the Editors of THE LANCET.

SIRS,—Can you find room for the account of the following case in order that members of the profession may offer suggestions as regards diagnosis?

A female child, three and a half years old, was brought to my consulting-room on the morning of August 6th on account of "feverishness" during the night. I examined the case carefully and, apart from a temperature of 100° F., could find no physical signs of disease in any of the organs. The throat was clear but the bowels were confined. I prescribed grain doses of calomel in the form of sweets and saw the patient again in the evening of the same day. The temperature had then risen to 101°. I gave her a saline mixture and saw her again two mornings later (August 8th), when

the temperature was again 100°, and as the bowels had still not been opened I ordered a little carbonate of magnesia. On the 9th I saw her again, when the temperature had risen to 101° again, and as the bowels were still confined I ordered grain doses of hydrargyrum cum creta. On the 10th the temperature rose to 102°. I began to suspect typhoid fever and treated her on those lines. I ordered an enema and the day after—viz., August 11th—the child had a good opening and the temperature fell to normal. I examined the stools and although they looked somewhat pea-soupy in colour they were certainly not distinctive and not very offensive.

Although the temperature fell to normal and the child seemed much better I again made a very careful examination, still bearing in mind a possibility of typhoid fever (on account of the stools and the somewhat apathetic appearance of the child), but could not find any trace of that disease. The spleen was not palpable nor was its percussion area enlarged, and there was no tenderness in that region The tongue was certainly not characteristic and the pulse was not dicrotic. There were no rose spots to be seen; although it being only the sixth day of illness it was perhaps still somewhat too early to expect them. There was slight congestion of the lungs and I therefore suspected a hidden pneumonia or acute miliary tuberculosis, although the breathing was not of the pneumonic type and there were no other symptoms or signs to suggest any lung mischief. The child complained of some headache, but there were no other signs whatsoever of any cerebral or meningeal trouble. There was no squint, no retraction of the head, no Kernig's sign, and an ophthalmoscopic examination gave an entirely negative result. The ears and nose were examined, but absolutely nothing abnormal could be discovered. The apathetic appearance and somewhat drowsy condition of the child began to worry me a little, and therefore, when I found on the next day, the 12th, that the temperature had again risen to 102°, I called into consultation Dr. Cecil Wall. In spite of the most careful, prolonged, and very searching examination no definite conclusion could be arrived at, all signs being absolutely negative, although this was already the seventh day of the illness. It was decided to watch the case till the tenth day and that I should then examine the blood for Widal's reaction. The consultation was held at 1 P.M. and at 4 P.M. I saw the little patient again, when her face was extremely flushed, her lips were tremulous, and she was plucking at the bed-clothes. The temperature was then 106·4°. I immediately telephoned to the consultant to come to see the child again, but before he arrived the patient died from collapse. No post-mortem examination was made.

The case presents two points of interest. Firstly, What could have been its nature? Secondly, assuming even that it was typhoid fever why should the child have died so suddenly from hyperpyrexia and collapse when only a few hours ago there appeared to be every prospect of a good recovery? I am, Sirs, yours faithfully,

London, E., August 16th, 1907. M. FELDMAN.

AN ASSOCIATION OF SHIP SURGEONS.

To the Editors of THE LANCET.

SIRS,—In answer to many letters which I received concerning my letter in your issue of August 17th may I be allowed further space to say on behalf of the B.S.S.A. (British Ship Surgeons Association) which is being formed that its aims are:—Firstly, to improve the "status" of ship surgeons. Secondly, to issue a ship surgeons' gazette monthly, in which will be published "dissertations" on diseases peculiar to sea-going persons. Members will be expressly invited to narrate their experiences and views concerning the treatment of such affections as sea-sickness, &c. A special article on "Marine Hygiene" will appear in each issue. Thirdly, to provide a medium for advertisement of "vacant posts" and "posts wanted."

The way in which it is proposed to improve the "status" of medical officers will be discussed at length later, when it is hoped that members will forward suggestions on the proposition in question. That there is need for this movement there can be very little doubt, judging from the "pay" of ships' medical officers, which does not compare favourably with that of surgeons holding equally responsible positions ashore. A committee will be formed of 12 past and present ship surgeons, six "past" and six "present." The six senior surgeons of the leading shipping companies in Great Britain will be asked to stand as the six present members.

The joint positions of honorary secretary and treasurer will be filled *pro tem.* by myself until it is convenient for the committee to fill the "posts." The annual subscription (to include monthly gazette) is proposed to be 10*s.* 6*d.* per member, which, however, is not to be forwarded until further notice. It is hoped that all medical men eligible for membership will come forward and render all the assistance possible in the formation of this much needed association. Applications for membership and other communications will be gratefully received by

Yours faithfully,

G. METCALFE-SHARPE,

Late Surgeon P. and O. and Cunard Steamship Companies.
Angram Hospital, Middlesmoor, Leeds, August 19th, 1907.

THE TREATMENT OF TUBERCULOSIS AND LEPROSY.

To the Editors of THE LANCET.

SIRS,—In a preliminary note on the Successful Treatment of Tuberculosis and Leprosy (published in THE LANCET of April 13th and 20th) I suggested the possibility of converting toxins into antitoxins by oxidising bacterial products with the help of tannic acid and the natural vegetable ferments—oxydases, &c. Will you permit me to draw your attention and the attention of your readers to an abstract of a paper which appeared in the *British Medical Journal* of July 6th? I refer to the Epitome, p. 4, No. 11, "The Artificial Preparation of Therapeutic Serums." It would appear that Czajkowski successfully carried out the suggestion I made, only using the oxidising ferments of the liver and spleen in place of vegetable ferments.

I am, Sirs, yours faithfully,

S. F. WERNICH.

Somerset Strand, Cape Colony, July 29th, 1907.

THE TREATMENT OF INEBRIETY.

To the Editors of THE LANCET.

SIRS,—I send for publication an account of my experience as medical superintendent of the Dadson Nursing Home for Inebriates in Norwich which has been in existence for just two years.

The treatment I have adopted has been a short one of usually four weeks and the results obtained on both men and women have been highly satisfactory. Statistics in a matter of this sort are of no great value but I take the first 50 cases, all of which were treated over a year ago and most of whom have been traced. These cases were all treated on somewhat similar lines and an account of one typical case will show the system which I think should have the consideration of those who have cases of chronic alcoholism amongst their patients.

A man, aged 47 years, entered the home on August 3rd, 1905; he had been a chronic alcoholic for years and had a distinct family history of hereditary alcoholism. I allowed him to have a certain amount of his favourite beverage, as he was drinking heavily on admission, and started him at once on one teaspoonful dose with about two ounces of water added, every two hours from 9 A.M. till 9 P.M., of the following tonic: Ammon. chlor., gr. i.; aloin, gr. ii.; tr. cinchon. co., ℥ iii.; viburnum cordial, ℥ i. Being in a shaky condition I found that an occasional dose of a mixture composed of ammon. chlor., tinct. cinchon. co., viburnum cordial, tr. capsici, and ext. kolæ liq. was very beneficial. I also gave him four times a day at intervals of four hours five minims of the following hypodermic injection: Daturinæ sulph., gr. i.; strych. sulph., gr. ii.; acid. boric., gr. v.; aq. dist., ℥ iv. During the first ten days I increased the injection gradually to double this quantity, no unfavourable symptoms being present. I am of opinion that datur. sulph. is much better than atropine, patients suffering far less from their eyes and complaining less of dryness and parched throat.

The injections and tonics were continued for three weeks and during the fourth week of treatment I reduced the number of tonics and number and quantity of injections, until at the end of the fourth week, i.e., the last day of treatment, he received only two doses of tonic and one five-minim dose of injection. Insomnia was treated by means of veronal.

This man had perfect freedom during his stay in the home. After a few days his desire for alcoholic beverages disappeared and by the end of the first week he was practically normal. His brain began to be active and he was anxious to have occupation. He went straight back to his

old work and surroundings and is at the present time doing well. In private practice it is difficult to treat chronic alcoholism on these lines because the mental advantages which result from the surroundings of a special home are an essential factor in bringing about the desired results.

The following statement appeared in a medical journal which I fully confirm: "That no treatment by drugs alone can be expected to yield permanent results, and in every case the general condition of the patient must be treated by general means, by simple dietry, by tonics, and by treatment of any physical lesion, while his mental and moral fibre is built up by judicious management and sympathetic influences."

I am, Sirs, yours faithfully,

Norwich. J. M. G. BREMNER, M.B. Aberd.

A CASE OF SUPERNUMERARY DIGITS.

To the Editors of THE LANCET.

SIRS,—The report of a case in THE LANCET of July 20th by Dr. W. H. W. Attlee recalls a case under me in 1902. In a newly born male infant I found that there was an extra little toe on each foot just as perfectly formed as the toe which rightfully belonged there and growing from a point over the metatarso-phalangeal joint. On the left hand was a perfectly formed little finger growing from a point on the ulnar side over the metacarpo-phalangeal joint, while on the right hand, in a similar position, was a jelly-like mass hanging by a mere thread of tissue which was undoubtedly intending to become a perfect digit at some time. I removed this latter mass of tissue by a mere twisting of its small pedicle. But although this was interesting enough I was astonished to find that of four other children in the home, two girls and two boys, each of the boys had an extra little toe on each foot and had been allowed to grow up to that date without any interference with these extra digits. There were no extra digits on their hands and the girls had no deformity whatever. Neither the father nor the mother was deformed in any way, nor were they related in any way before marriage.

I am, Sirs, yours faithfully,

OSWALD C. WITHROW, M.B. Toronto,
M.R.C.S. Eng., L.R.C.P. Lond.

Fort William, Ontario, Canada, August 10th, 1907.

CHLOROFORM ADMINISTRATION: THE "OPEN METHOD" *v.* APPARATUS.

To the Editors of THE LANCET.

SIRS,—In the discussion upon chloroform administration at the British Association meeting at Leicester there are two points upon which I should like to express dissent. First, Is not the danger of an under dose of chloroform a dangerous position to adopt? The explanation which Dr. Hewitt gave amounted to the fact that irregular and obstructive breathing occurred, but is not this seen in many cases in the first stage, to be met by increased caution, anxiety, call it what you will? Secondly, with regard to the "open method." Chloroform administration is so entirely one of judgment. Each case has to be treated upon its own merits. Cases differ so much in their susceptibility. The patient, not the apparatus, should be the only thing observed. With apparatus a certain percentage of chloroform to a patient, whose peculiarities, &c., are very largely an unknown quantity; with the open method an uncertain percentage is given. Directly the patient is found to be "going under" too quickly, or to present unfavourable symptoms, and when he is sufficiently under chloroform, the towel or flannel is at once removed from the patient's face and only pure air inspired; this, for quite a short time, or longer, according to the judgment of the administrator.

I am, Sirs, yours faithfully,

Chester, August 12th, 1907. HENRY W. KING.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Launceston (Cornwall) Board of Guardians and Vaccination Fees.

AT a meeting of the Launceston board of guardians, held on August 12th, it was reported that the sub-committee which had been appointed to consider the question of the vaccination fees had conferred with the public vaccinators upon the subject, but the medical men were unanimous in declining to accept the fee of 3*s.* 6*d.* offered by the guardians. After some discussion it was decided that the public vaccinators, if they still refused to accept the reduced fees, should be given 28 days' notice to terminate their contracts.

The Sewage of Bath.

In a report to the Bath sewage disposal committee Dr. H. Maclean Wilson (chief inspector of the West Riding Rivers Board) expressed the opinion that the question of sewage disposal in Bath offers no special difficulty, as the sewage must be pumped, and can easily be raised to such a level as will permit of any method of treatment. The report adds that the proposed site at Saltford, about midway between Bristol and Bath, is in most respects an excellent one for sewage works, and the works would probably be less costly than in many cases, because of the availability of materials and the ease of carriage to the site.

The Chippenham Board of Guardians and the Local Government Board.

At a meeting of the Chippenham board of guardians held on August 14th it was reported that the Local Government Board had written stating that after further consideration it must adhere to its previous decision, that as there was now a qualified medical practitioner residing in the district it could not consent to the continued employment of a non-resident medical officer beyond Dec. 25th next.

Proposed Cottage Hospital for Neath.

When a proposal was made about four years ago to establish a cottage hospital in Neath the scheme was opposed on the ground that the needs of the district were fully served by the hospital at Swansea. This view is not held by so many of the inhabitants of the town as was formerly the case, so that there is every possibility of a small hospital being established in Neath. In 1904 a sum of £2000 was given towards a hospital fund, one half to be used for building and the remainder to be invested. A further £300 have been subscribed and there ought to be no difficulty in a town of 15,000 inhabitants in obtaining the amount necessary to erect a building to suffice for, say, six patients. Wherever similar institutions have been established in other industrial centres in South Wales their usefulness has at once been appreciated and funds for their support have been readily obtained.

Illegitimacy in the Rhondda Valleys.

In his recently issued annual report the medical officer of health of the Rhondda valleys (Dr J. D. Jenkins) gives the amount of illegitimacy as it should be stated—namely, in proportion to the number of unmarried and widowed women at conceptive ages. There were 101 illegitimate births in the district during 1906, a number equal to 10·5 per 1000 unmarried women and widows living between 15 and 45 years. The proportion in England and Wales in 1905 was 8·2 per 1000. The infantile mortality rate during 1906 in the Rhondda was equal to 327 per 1000 illegitimate births compared with 171 per 1000 in the case of legitimate births and deaths.

Overcrowded and Insanitary Pembrokeshire School.

Instances of overcrowding in some of the public elementary schools in South Wales have been frequently published, but it is to be hoped that the conditions reported by a committee of the Pembrokeshire Education Authority as having been found in a school at Haking, near Haverfordwest, do not exist in many other schools. The average attendance was 175, but there was seating accommodation for only 108, so that many of the children had no desks or seats and had to sit on the floor. There was no room for the classes to stand and the five teachers taught in the sound of each other's voices. The sanitary offices were said to be in a filthy condition and the walls of the school-rooms were so damp that the inside covering was peeling off.

Medical Officer of Health of Monmouthshire.

The Monmouthshire county council has at last decided to appoint a county medical officer of health. At the meeting of the council at which this decision was arrived at it was resolved to ask the Local Government Board not to press for the appointment of a joint medical officer of health for certain colliery districts in the western part of the county, and it was further decided not to make the appointment of a county officer until the decision of the Board on this question had been received. There was an evident disposition upon

the part of some members of the council to make the appointment of a county officer conditional upon the retention of the part-time medical officers in the western districts, although one very prominent member said that in his experience he had seldom found medical officers of health who were independent of the local authorities.

Typhoid Fever in Winchcombe in 1906.

The medical officer of health of Gloucestershire, Dr. J. Middleton Martin, comments in his annual report upon the outbreak of typhoid fever which occurred on Cleeve-hill in the Winchcombe rural district in the autumn of 1906. There were 39 persons attacked and all the affected houses were supplied with water from two neighbouring sources which were contaminated about the same time. "The story of this outbreak," says Dr. Martin, "is all the more to be deplored, because it ought never to have occurred had attention been given to reiterated warnings."

August 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Proposed Testimonial to Mr. John Carswell.

A MEETING has been called by the Lord Provost of Glasgow to consider the desirability of expressing in some tangible manner the sympathy felt for Mr. Carswell in connexion with the recent distressing incident, when he was shot at and seriously injured in the public streets by a man whom he had certified insane some time previously. The meeting was well attended and it was agreed that an attempt should be made to raise £500 by subscription for presentation to Mr. Carswell. A committee was formed, of which the Lord Provost was appointed convener, Dr. J. Crawford Renton sub-convener, and Mr. Nicol, City Chamberlain, honorary treasurer. The sum of over £60 was subscribed at the meeting.

Enteric Fever at Peterhead.

The total number of cases of enteric fever notified so far since the commencement of the outbreak amounts to 340. Of these 147 have been treated in the hospital and the remainder at home. During the last week 57 cases have been discharged as well and no deaths have occurred. The number of cases notified during the past week has been 16. It is now estimated that out of the total number of cases 180 patients have fully recovered. At a monthly meeting of the Peterhead town council held recently it was agreed to provide hospital accommodation, if necessary, for fever patients from the coastguard buildings and from the Admiralty works, on the same terms as the council is charged for town's patients at Strachen Hospital. At a meeting of the public health committee, held on August 8th, the local medical practitioners were asked to attend for the purpose of making any practical suggestions with a view of an abatement of the epidemic, and the following recommendations were adopted:—

1. That every person suffering from the disease who is without proper lodging or accommodatton, or is so lodged that proper precautions cannot be taken for preventing the spread of the disease, should be removed to and detained in hospital so long as he continues in an infected condition.
2. That bi-weekly analyses of the water be taken.
3. That all bedding, clothing, or articles which have been exposed to infection shall be taken to the hospital for the purpose of disinfection.
4. That the services of an expert be obtained for the guidance of the town council, and that Dr. Matthew Hay, medical officer of health, Aberdeen, be appointed.

These recommendations were approved of at the Council meeting.

Nairn Town and County Hospital.

The annual meeting of the Nairn Town and County Hospital was held on August 15th. The medical officer reported that 101 cases had been under treatment during the year. Of these 66 were cured, 19 were relieved, eight died, and eight remained in hospital. 47 out-patients received treatment. The new hospital, which was formally opened on August 15th by the Earl Cawdor, has now been successfully completed. The total cost of the hospital was £4721 11*s.* 2*d.* Towards this Mr. Mann had gifted the sum of £4000, while the free proceeds of the bazaar amounted to £1408 19*s.* 1*d.*

August 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Tuberculosis in Ireland.

THE Registrar-General of Ireland, in his annual report for 1906, points out that while in England the rate for all forms of tuberculous disease has declined from 3·3 per 1000 in 1864 to 1·6 per 1000 in 1905, and in Scotland from 3·6 per 1000 in 1864 to 2·1 per 1000 in 1905, it has in Ireland risen from 2·4 per 1000 in 1864 to 2·9 in 1904 and to 2·7 per 1000 in 1905 and 1906. A decline from 2·9 per 1000 in 1904 for all forms of tuberculous disease to 2·7 per 1000 in 1905 and 1906 is something, but not much. Out of a total of 74,417 deaths registered in Ireland in 1906 no fewer than 11,756, or 15·8 per cent., were due to tuberculous disease. Of the total number of 11,756 deaths the number dying from phthisis (pulmonary tuberculosis) was 8933. Of this total 1072 died from the age of 15 to 20 years, the deaths from 20 to 25 years numbered 1444, and from 35 to 45 years they numbered 1557. The number given as dying between 25 and 35 years is 2573 (1292 males and 1281 females). It is little wonder that the Registrar-General says that, comparatively speaking, Irish people are not alive to the dangers which threaten them.

Queen's College, Belfast.

It will be recollected that Sir Donald Currie gave £20,000 to the equipment fund of Queen's College, Belfast, provided a similar sum was subscribed, which was done, and the college thus benefited by £40,000; he also offered, if the students would try to raise a sum sufficient to purchase an athletic field, to be responsible for a fourth of it. The amount aimed at was £5000, but owing to most inclement weather a bazaar in aid of the fund did not succeed so well financially as was hoped. However, Sir Donald Currie, on hearing this, most generously sent last week a cheque for £2000 to pay off the amount required to complete the £5000. This splendid act of generosity has given the most profound satisfaction in Belfast circles. At the request of the authorities of Queen's College Lord Kelvin has kindly consented to come over to Belfast for the purpose of opening the new buildings which are to be devoted to scientific research and teaching. The ceremony is to take place on Sept. 20th.

Health of Belfast.

For the week ended August 10th 20 cases of infectious disease were notified in Belfast: four of typhoid fever, two of scarlet fever, four of simple continued fever (whatever disease this is), one of diphtheria, four of erysipelas, and five of cerebro-spinal fever. This number is less than that of the previous two weeks which were 27 and 32. There is an increase of two in the case of cerebro-spinal meningitis. The death-rate was low—14·6. There were three deaths from cerebro-spinal fever.

Alleged Pollution at Stoneyford.

The question of the pollution at Stoneyford, one of the Belfast water catchment areas, came before the Lisburn Rural Council on August 17th, when the solicitor of the council reported that by the instructions of the council, in company with Mr. J. Midgley-Taylor, C.E., London, and Mr. R. Best, barrister-at-law, he visited the Forked-Bride filter-beds to inspect the works and the grievances from which the people of the district alleged they were suffering. The caretaker at the filter-beds refused them admittance on the ground that they had no order. They were then obliged to make a circuit round the farms and through the meadows adjoining, with the caretaker in close attendance. In the opinion of the solicitor, the conduct of the Belfast Water Commissioners was "both stupid and childish and totally unbecoming a public body, for if they were satisfied that they were not at fault they should not only allow an inspection, but in fact court one to allay the feelings of the public in regard to the matter." A further report was made to the council (which is the sanitary authority of the Stoneyford area) of the foul nature of the liquid passed from the sand-washing operations into the Killultogh River. The council decided to engage the services of a competent man to keep watch and to report full particulars as to the mode of discharging the sediment and water into the river from the filter beds. The whole question of the condition of the Stoneyford area is of much importance, and the report of the

Belfast Health Commission on this point (about which they had much evidence) is awaited with great interest.

August 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The University of Algiers.

FOLLOWING the recent inspection of secondary schools (*écoles supérieures*) in Algiers which was made by the late M. Moissan and Professor Bouchard, who reported in favour of the founding of an Algerian university, the Governor-General of Algeria has brought the proposal before the financial delegates and they have adopted it. This vote supports the opinion of the Minister of Finance for Algeria who has urged the creation of a university for Northern Africa. M. Moissan and Professor Bouchard, in their report, had proposed the establishment of an institute of natural science, experimental botany, zoology, and hygiene, and pointed out the political and social effects of the foundation of a university which would form a powerful link between the various races which form the population of Algeria.

Elimination by the Mammary Glands.

At the Thirty-Sixth Congress of the French Association for the Advancement of Sciences, held at Rheims at the beginning of this month, M. Henri Labbé and M. Pépin communicated a paper on the above subject. Various substances absorbed by nurses can be recovered from the milk, such as garlic, onion, and asparagus, under the form of aromatic bodies. The body which most easily passes into the milk is alcohol but iodine is almost equal to it. The mammary gland seems to add to its normal function an eliminatory power for certain substances, and M. Labbé and M. Pépin considered that some products of intestinal intoxication can appear in the milk, for in the case of nurses who were ill the children whom they suckled suffered from various gastro-intestinal troubles which disappeared when the nurse was changed. M. Labbé and M. Pépin looked especially for indigo and the sulphur ethers in various milks. They laid great stress upon the chemical and biological properties of the various milks which they examined.

The Surgical Treatment of Paralytic Deformities of the Limbs.

At the same congress M. Menciére gave an account of some researches upon which he had been engaged during the last ten years as to the cure of paralytic deformities of the limbs. He showed a series of lantern slides dealing with such cases as flail shoulder-joints, forearms in forced pronation, club hands, paralytic talipes equino varus or valgus, and flail knee-joints, which gave a very accurate idea of the various deformities and of the degree of anatomical correction and of functional cure which he had obtained by such operations as musculo-tendinous grafting or other operations according to the needs of the case. Some 10 per cent. of the cases were hopeless and nothing could be done for them. 70 per cent. were curable or could be so much improved as to be practically cured, and 20 per cent. were capable of very great improvement. For example, helpless cripples were made capable of walking and those who suffered from paralysed limbs were able to give up their orthopædic apparatus and to use the limb fairly well. As to the causes of the deformities 54 per cent. of patients suffered from infantile paralysis, 15 per cent. from cerebral infantile hemiplegia, 25 per cent. from spasmodic paraplegia, and 6 per cent. from paralysis due to other causes. M. Menciére's statistics deal with 250 cases of operation.

August 20th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Anti-malarial Campaign in Italy.

THE campaign against malaria has been continued in 1906 with undiminished vigour and with considerable success. The experience of former years had proved the immense prophylactic value of quinine, and consequently increased attention has been paid during the past season to the distribution of this drug and to its effects as compared with other measures upon the salubrity of malarial districts. As will be seen by a glance at the table given below the quantity of State quinine distributed yearly has rapidly risen from 2242 kilogrammes in the financial year 1902–03, when its distribution was begun, to 20,723 kilogrammes in the present year of 1906–07. This result has been achieved in the face of many difficulties, such as the apathy and ignorance of the peasantry and the active opposition and competition of certain manufacturers interested in their own special preparations of the drug. The largest quantity *per capita* of the State quinine has been consumed in the Basilicata, after which in order rank Sardinia, Puglia, Latium, Calabria, the Veneto, and Sicily. It is still unfortunately the case that the State quinine does not reach all the population and that time and organisation are required to bring it freely within the reach of the poorest and most wretched in the outlying districts. Another necessity is the State distribution of some non-bitter form of quinine for the use of children. Three years ago Professor Celli proposed for this purpose the tannate of quinine, which is insoluble, or nearly insoluble, in water and hence almost tasteless. Its introduction encountered much opposition, however, even amongst the members of the Superior Council of Hygiene, on account of the long accepted but mistaken belief that the insoluble salts of quinine must necessarily be inert. Experience has shown on the contrary that the tannate of quinine is no less active therapeutically than the other more soluble salts of that alkaloid, while Professor Gaglio has proved experimentally that there is a remarkable tolerance on the part of the organism towards the tannate because it is only absorbed slowly as it comes in contact with, and is decomposed by, the juices of digestion. Its toxicity is thus little or *nil*. Made up in the form of "chocolates" the tannate is readily taken by the youngest children. Among 736 children affected with malaria in 1905–06 the tannate of quinine was used successfully by Professor Concetti in all but 19 cases (2·5 per cent.), while among 690 children treated with the tannate as a prophylactic there were only nine failures (1·15 per cent.). In all these patients it was admirably tolerated. Its action against recidivous attacks was very decided, as was likewise its antiperiodic power. From the following table it will be seen that while the consumption of State quinine has risen to over 20,000 kilogrammes the mortality from malaria throughout the whole country has diminished since 1900 by two-thirds.

Consumption of State quinine.		Mortality from malaria.	
Financial year.	Kilogrammes sold.	Year.	Total deaths.
—	—	1900	15,865
—	—	1901	12,358
1902–1903	2,242	1902	9,908
1903–1904	7,234	1903	8,513
1904–1905	14,071	1904	8,501
1905–1906	18,712	1905	7,838
1906–1907	20,723	1906	4,690

It is true that the natural tendency to variation of the mortality curve would lead us to expect a natural descent from 1887 onwards, yet it is undeniable that in 1902 a new modifying factor was introduced by the use of State quinine which has rendered this descent much more acute, and which has, moreover, greatly impeded the recrudescence of malaria since that time throughout the whole of Italy. That this improvement has not been effected by the quinine sold by private enterprise is evident from the fact that the consumption of quinine derived from this source has meanwhile remained almost stationary. It may be safely predicted that when some appropriate preparation of the drug comes to be freely used for children under three years of age the mortality from malaria will be promptly reduced to a minimum, whilst the infant mortality from enteritis will also greatly diminish. As to its preventive effects, statistics prove that the use of State quinine has been no less successful in checking the morbidity from malaria than it has been in diminishing the mortality. Thus, for example, in the Agro Romano from 1900 onwards, as the quinine prophylaxis was gradually extended, the proportion of primary infections fell from 16·17 to 0·77 per cent. and the proportion of malarious persons from 31 to 3·4 per cent. of the protected population, while the periodic recrudescence of 1905 in the different zones of the Agro Romano was not observed at all. The same

remarks hold true for other malarial districts of the Peninsula and adjoining islands. A vast amount of work still remains to be done, however, before Italy can be freed from her perennial scourge. This must be accomplished not only by better organisation of the sanitary services against malaria but by coördinating the task of the medical man with that of the engineer and that of the agriculturist.

The Lunacy Laws in Italy.

A question having been put to the President by one of the councillors of the provincial deputation of Rome regarding the case of a man lately discharged from the lunatic asylum as cured, but who had subsequently committed suicide in prison during a recurrence of suicidal mania, Professor Mingazzini, medical superintendent of the asylum, has addressed a letter to the president of the deputation calling attention to the state of the law which renders such occurrences possible. The law of Feb. 14th, 1904, clearly prescribes that only those lunatics who, in addition to showing signs of mental alienation, are in some way giving rise to public scandal, or are dangerous to themselves or others, shall be definitely interned in asylums. It thus becomes the duty of the medical authorities to reject as ineligible the harmless idiot, the epileptic who is subject to maniacal attacks only at long intervals, the alcoholic who, immediately he escapes from the toxic action of alcohol, regains his usual calm, and finally all delinquents who, even though completely destitute of moral sense, do not exhibit the clinical symptoms required to raise their moral blindness to the level of recognised insanity. The asylum, in other words, must, according to the spirit of this law, be reserved for dangerous or unmanageable lunatics, and the director of the institution has no alternative but to discharge an inmate who has temporarily recovered, even when his mental condition is such as to forbode within a more or less distant period of time new and still more terrible manifestations of his latent malady. For example, if an epileptic who during an access of mania has attempted or even committed homicide remains perfectly free from further attacks for some months or at most one year, it becomes the legal duty of the director to order his discharge from the asylum. A similar thing happens to the alcoholic who after some months of abstinence, during which he regains his mental lucidity, is dismissed as cured, although it may be easily foreseen that once set at liberty he will inevitably yield to the imperious call of the drink habit. While the asylums of Italy thus shut their doors against all but the dangerous lunatic, where and by whom, asks Professor Mingazzini, are received the 60,000 epileptics whom the asylums cannot admit, the idiots, the harmless imbeciles, the constitutionally abnormal adolescents (who in Italy are more numerous than in any other European country), and all those poor old demented and paralysed creatures who are stamped as dangerous, albeit their dangerousness consists solely in the expense which their maintenance entails upon their respective families? Thrown into prisons and houses of correction or driven by illness into the wards of hospitals, these poor wretches have nothing before them but homicide, if they are endowed with the criminal temperament, or suicide if they are incapable of the struggle for existence. He urges that such institutions as have lately been established in Germany be provided for the reception of the numerous family of destitute neurasthenics who if not so taken care of become candidates for suicide or crime. Professor Mingazzini is, he adds, ashamed to think that the only asylum of which Rome can boast owes its existence to the piety of a Pope, and that the provincial deputation, after deliberating for some 20 years, has not been able to decide where to place the first stone, not of such a beneficent institution as that which he advocates, but even of a commonly decent lunatic asylum of which everyone admits the city's urgent need.

August 13th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Criminal Responsibility of the Insane under the New Civil Code.

As the Austrian Civil Code is just now under reconstruction Professor von Wagner, the eminent professor of psychiatrics, in a paper recently read before the Society of Neurology and Mental Diseases, dealt with the question of reforming the present laws dealing with the responsibility of the mentally afflicted. The professor emphasised the necessity of amending the present conditions as these allow the judge too little liberty in forming his opinion as to the causes for not punishing a criminal of this type. In fact, the law is so narrowly drafted as to extend the exemption from punishment to such persons only as are entirely devoid of reasoning, individuals who are usually incapable of doing any harm. Therefore the present tendency is for judgments to go further than the law strictly allows. Professor von Wagner therefore advised the formulation of positive principles, stating the types of mental diseases which affect the evil-doer in such a way as to render him incapable of distinguishing between right and wrong and the types which have not this effect. That constant source of dispute between lawyers and psychologists, moral insanity, could also be brought into the positive part of the text. The Austrian law does not fix the position of the psychiatric expert, and leaves the judge who, as a rule, has no special knowledge in this respect, to decide the fate of mentally afflicted persons when they have come within reach of the law. Professor von Wagner thinks it advisable therefore to appoint experts with a consultative vote, and to erect special institutions where the mentally afflicted criminal can be placed under continuous observation of both the mental experts and the legal authorities. Such homes for insane criminals are contemplated already by the Government, as is shown by the budget of the Minister of Justice. Special care ought to be paid also to mentally affected children, as from these a number of criminals spring, who could be prevented from doing harm to the public if taken care of in proper time. The proposal of Professor Wagner will be brought before the next congress of psychological medicine, and if adopted will be presented to the Government as a basis of reform in this particular respect.

Late Opening Hours in Shops.

An important step in the social improvement of the hard-worked shop assistant has been made by the almost universal adoption in Vienna of early closing hours for the shops of all descriptions. It was at first proposed to close these shops early enough to release the staff at 6 in the evening, but business interests suggested that people went to shop up to a later hour, so that 7 or 8 o'clock, according to the kind of business, has been agreed upon. But now the matter has been taken in hand by medical circles and it is possible that this reform will be reformed again. It has been justly emphasised that the desired effect of this measure, the possibility of open-air recreation, is not at all attained by finishing the day's work early in the evening, as there is only little fresh air to be had at that time in large towns or cities. The smoke and dust produced by the factories and the traffic is just as bad at 6 as at 8. The proper way to attain the object would be late opening of the shops at 9 o'clock, with special necessary exceptions, of course. This would allow the staff to obtain an ample supply of fresh air before coming to the shop, as in the morning the air is nearly always pure. The present opening hour is 7.30 A.M. This suggestion has aroused much interest in the parties concerned and it is possible that for once at least they will be on the side of common sense.

Alcohol and Mental Disorders.

By investigations made to ascertain the influence of alcohol on the mental faculties certain facts have been elucidated which are well worthy of mention. In a report from the asylums for the insane of Austria covering the last decade 70,000 insane were dealt with, and in about 15 per cent. of these alcohol was the chief or contributing cause. The one drawback to this calculation is the fact that hereditary influence is not considered. Numerous cases of alcoholic parents without mental disorder are known who beget insane children who do not fall victims to alcoholic excesses. As a rule alcoholic parents are fairly prolific, but their offspring suffer from mental defects, and the third generation, if alcohol is still indulged in, are no more capable of procreation. Great care must be exercised in eliciting all the facts concerning the parental alcoholism. In a series of 392 alcohol-insane inmates of the Vienna lunatic asylum 80 per cent. had hereditary influences to explain their lessened resistance to the toxic effect of alcohol. Another very interesting series showed the rule that when the primary criminal drunkard begets children they come in conflict with the laws oftener than the parent, whilst *their* children, few in number, generally become a burden not to the funds of the

Ministry of Justice but to those of the charitable institutions; they are mentally so deranged as to be classified amongst the "irresponsibles." Special heed is now paid to criminal drunkards, and the possibility of placing these individuals into State asylums, not prisons, where their habit might be broken, has been often and often discussed in medical and forensic societies. The army reports also are now made use of to show the intimate connexion between alcohol and insanity, and freedom from punishment in such cases has already been the result of the investigation, which is the more to be praised from the medical point of view, as the disciplinary power of the army authorities with us is very great.

Spondylitis Syphilitica.

A rare case of localisation of syphilitic disease in the cervical vertebræ was reported by Dr. Okuniewski in a paper addressed to the *Wiener Klinische Wochenschrift*. An officer of the navy, 25 years old, complained of pains in the neck which were at first thought to be rheumatic but which did not react at all to the usual treatment. When examined by Dr. Okuniewski the patient could not move his head and held it as stiff as possible. There was tenderness of the trapezius and sternomastoid muscles; nothing seemed wrong with the spinal processes of the vertebræ but the patient could not open his mouth sufficiently to allow an examination of the anterior aspect of the cervical vertebral column. The patellar and Achilles reflexes were exaggerated. There was mild pyrexia; the urine was normal. As the pain continued, or rather grew worse, and as the spinal processes of the third and fourth cervical vertebræ were painful on pressure and appeared a little prominent, the head of the patient was placed in a Glisson's loop and thus immobilised. As the previous history suggested a suspicion of syphilis energetic specific treatment was advised and potassium iodide with grey ointment were used. After a fortnight's continued application of these remedies a decided improvement was seen. The Glisson loop was removed and the patient simply kept quiet in bed. Later, a plaster-of-Paris collar, which made movement of the neck impossible, was applied and the patient left the hospital. After three months of careful treatment he was discharged cured. The only trace of his severe disease was a little stiffness of the neck. Neither the spinal processes nor the bodies of the vertebræ could be felt to be enlarged, and the x rays showed no departure from the normal condition. After 14 days of antisyphilitic treatment the mouth could be opened. Syphilitic lesions in the spinal column are rare, and they can be only with difficulty distinguished from the tuberculous affections; in fact the diagnosis depends on the effect of treatment.

August 14th.

Obituary.

CHARLES WILLIAMS, F.R.C.S. EDIN.

NEWS of the death of this well-known East Anglian surgeon will be received with deep regret by his many friends. He had been in his usual health until a few months ago when symptoms of malignant disease of the throat became manifest. Mr. Williams was born at Gloucester, the son of a physician of that city. After serving as a pupil at the infirmary he was elected assistant house surgeon at the Bradford Hospital. He subsequently entered Charing Cross Hospital and in 1857 took the Membership of the Royal College of Surgeons of England. In 1858 he became house surgeon to the Norfolk and Norwich Hospital, with which he was connected for nearly half a century. In 1869 he was appointed assistant surgeon and in 1878 full surgeon. He was a skilful practitioner and made a number of very valuable contributions to medical literature.

Though Mr. Williams was a very busy man in his profession he found time for antiquarian researches. One of the best pieces of work of his life is the fine collection of portraits of benefactors, officials, and physicians connected with the city of Norfolk, which now adorns the board room of the hospital. As Sir Peter Eade says in his history of the hospital, "this collection is almost entirely due to the untiring energy of Mr. Charles Williams, the senior surgeon in the hospital, who has not only by his efforts obtained the majority of them but has most kindly presented them free of cost to the governors." A short catalogue and description, extending to 81 items, was published by Mr. Williams in 1890. Among the portraits is one of the best known of Caius, who was born at Norwich. Outside the profession Mr. Williams is best known by his studies of the life of Sir Thomas Browne. He possessed a fine collection of the works of that old Norwich worthy and was instrumental in forming the Browne Library which is at present in the Norwich Castle museum, and which comes largely from the collection of the late Simon Wilkin. With Sir Peter Eade Mr. Williams was one of the chief promoters of the movement to erect a monument to Sir Thomas Browne. Among his studies may be mentioned the "Measurement of the Skull of Sir Thomas Browne," "Portraits of Sir Thomas Browne," "The Pedigree," and on the occasion of the unveiling of the Browne statue he prepared a very full "Bibliography of the Religio Medici," a second edition of which has only just been issued. His knowledge of local history and antiquities was very complete and accurate, and he made a most interesting general collection of portraits and pamphlets relating to Norfolk and Norwich worthies.

FRANCIS JAMES PEARSE, M.R.C.S. ENG., L.S.A.

THE death on August 8th of Mr. Francis James Pearse of 75, Warwick-square, S.W., at the comparatively early age of 59 years, removes from the City of Westminster a prominent local practitioner and the last male representative of an old and much respected medical family the members of which have resided in Westminster for several generations. He was the younger son of the late Mr. George Pearse of St. George's-square, S.W., with whom he was formerly in partnership and whom he subsequently succeeded. His elder brother, Mr. George Edmund Legge Pearse, F.R.C.S. Eng., who died in January, 1904, was sometime surgeon to Westminster Hospital and his uncle, the late Dr. William Grindley Pearse of Bessborough-gardens, S.W., was one of the public vaccinators recognised by the General Medical Council. Like his brother, Mr. Francis Pearse was educated at Westminster School and received his professional training at the hospital in Broad Sanctuary where he filled the post of assistant house surgeon. In 1868 he was appointed a prosector at the Royal College of Surgeons of England. He became qualified as L.S.A. in 1869 and M.R.C.S. Eng. in 1870. After he joined his father in practice Mr. Pearse was appointed surgeon to the A Division of the metropolitan police, medical officer to the United Westminster Almshouses, and for several years he was surgeon to the Western Dispensary, Westminster

The practice which he and his father carried on had been established in Westminster well over 100 years. It was founded in the reign of George III. by Dr. Grindley who had previously been an army surgeon but finally settled down in practice in Marsham-street, which was then one of the fashionable parts of Westminster. Dr. Grindley was succeeded by his son-in-law, Mr. George Pearse, who had commenced life in the navy, having been surgeon to the *San Josef*, one of Nelson's ships. On his death he was succeeded by his son, Mr. George Pearse, who died in 1891 at the age of 80 years, and was in due course, as already mentioned, succeeded by his son, the subject of the present notice.

Mr. Francis James Pearse took the keenest interest in the Volunteer movement from its early days. At the time of his death he held the post of surgeon-colonel to the Victoria and St. George's Rifle Volunteers and Army Medical Reserve. He was rather reserved in manner but those who knew him best were most warmly attached to him.

JOHN ALFRED FOX, L.R.C.P. LOND., L.R.C.P. & S. EDIN., L.F.P.S. GLASG., L.S.A.

Mr. John Alfred Fox died at his residence, Penzance, on August 6th, from nephritis, in his forty-eighth year. The deceased was the son of the late Mr. Arthur Fox of Illogan, Cornwall, and after being a pupil to the late Mr. J. Quiller Couch, surgeon, of Fowey, Cornwall, he proceeded to Guy's Hospital Medical School. He took his qualifications in 1890 and succeeded to the practice of the late Mr. Dodge of Penzance. Mr. Fox had an extensive practice at Penzance, he was honorary surgeon to the West Cornwall Infirmary, district medical officer and public vaccinator, and also surgeon to the workhouse; he was also surgeon to the post-office staff and education committee. He was for some years a surgeon-lieutenant in the 1st Cornwall Royal Garrison Volunteer Artillery. Mr. Fox was formerly on the Penzance borough council and actively interested himself in the establishment of a meteorological observatory for the town. He was a good sportsman and a prominent supporter of the local football and cricket clubs. Mr. Fox was very popular in

Penzance and he will be much missed there, and great sympathy is felt for his widow and four children. The funeral took place at Illogan churchyard on August 10th and was largely attended.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Georg C. Kirchhoff, the senior member of the profession in Germany, being 94 years of age. Up to the year 1900 he held an appointment as district medical officer in Leer, Hanover.—Dr. Josef Jacobi, formerly titular professor of pharmacology in Breslau and author of various papers on that subject, as well as on hygiene and ophthalmology. He was 67 years of age.

Medical News.

UNIVERSITY OF EDINBURGH.—The following is the official list of passes at the recent professional examinations for degrees in medicine and surgery:—

First Professional Examination.—George M. Adam, William J. Adie, Joseph R. Aeria Robert Aitken, John E. Allan, Wallace R. Bayne, Henry Bedingfield, Delvine Bell, Archibald J. Bennee, Alexander G. Biggan, Herbert F. Blacklee, John P. Blockley, Arthur Bloom, Norman H. Bolton (with distinction), Thomas C. Britton, Niels H. Brönnum, David L. Brown, William Bruce, Cecil Burnham, A. Bruce Cheves, Jacob D. M. Claassens, Effie M. D. Craig, Philip L. Davies, Charles G. Deane, Robert C. Dickson, John M. Drew, B.A., Helen C. Dykes, Abraham Eprile Joseph Geoghegan, John M. Gillespie, Robert Govan, M.A., John V. L. Grant, William C. M. Grant, James Gray, John W. Gray, M.A., Albert Groenewald, Spencer M. Hancox, Kenneth G. Hearne, Alfred M. V. Hesterlow Stewart Hodgson, J. Elise Hoffmann, Harry F. Holmden (with distinction), Gwendolyn G. Hunter, William H. Inch, Robert C. Irvine, William H. Johnston, B.A., Braj B. Kapila, Edward W. Lawrence, George L. Leggat, Louis Levy, William E. Lewis, Neale L. Lochrane, Henry R. Longstaff, Adrian H. Louw, Francis R. Luke, George M'Connell, Ian Macfarlane, Alexander M. Mackay, Jessie A. MacLaren, Francis de S. M'Menamin, L. B. C. Marksman, Sesi Marshall, John S. S. Martin, Victor H. Mason, Horace M. Mills, Archibald B. Mitchell, John S. Monro, Arthur E. Moore, Hugh Morris, B.A., John T. Morrison (with distinction), R. Carlyle Moses, Thomas P. Noble, Patrick F. Nolan, Robert Park, Harold H. Proudfoot, Nicholas Purcell Maxwell Ramsay, Mary D. Rankine, Spence D. Reid, George Richardson, John S. Robertson, John Scott, Peter M'L. Shiels, Bryce M. Smith, Charles E. H. Smith, Jacobus J. Stander, Robert S. Stevenson, Samuel D. Stewart, Sidney W. H. Stuart, Tehl Singh, Dirk L. Theron, Arthur H. Towers, Patrick G. Tuohy, Peter Vieyra, Gerritt H. W. de Vos, Charles D. Walker, Chung Ching Wang, Hermann W. Webb, James B. Wilkie, Donald M'D. Wilson, George Wilson, and Walter Q. Wood.

Second Professional Examination.—Fergus Armstrong, Janet Armstrong, Anédée E. C. Beausoleil, John Henry Bell, Ronald A. Bell, Jackson G. Boal, William G. Brand, Peter de Bruyn, Oswald S. Bulloch, Armando D. Child, James Davie, William N. Davies, Alexander B. Drynan, William Dunlop, Alexander H. Elmslie, Herbert G. Feltham, Gerhard F. Fismer, Michael Gavin, Frederick P. Gibson, Walter E. Goss, William T. Graham, Robert Hamilton, Thomas E. Harwood, B.A., Eduard B. Hoffman, John H. Jones, Roy R. Kerr, Changathara G. Kurien, Lina Kurz, Janet Leiper, Leonard Leslie John S. Levack, William H. Lowe, Donald C. Macaskill, M.A., Margaret M'Cahon, Patrick M'Cool, James M'Kail, M.A., James M'C. M'Keand, Neil M'Leod, Mary M'Millan, Hector D. MacPhail, M.A., Andrew J. Macvie, Charles G. Marais, Alexander F. W. Millar, Gregor M. Miller, Alexander M'K. Minford, William Morrison, Rhoda May Murdoch, William J. Nisbet, James E. R. Orchard, Horace E. A. Philp, Johannes A. Pienaar, B.A., Ella F. Pringle, Frederick W. Rayment, Charles S. Sandeman, John M'G. Scott, John D. Skinner, William Stevenson, Arthur E. Talt, Robert H. Talt, Leonard W. O. Taylor, Seymour Williams, and Margaret C. Young.

Third Professional Examination.—A. H. T. Andrew, William Bainbridge, A. R. Bearn, Henry Burns, Ellison Cansfield, J. A. R. Cargill, H. G. Carter, Louis L. Cassidy, P. H. Chauvin, A. C. Court, J. C. Craig, M.A., John Crocket, J. M. Dalrymple, Margaret E. Davidson, Purser Davies, Fred Dillon, Helen Forbes, W. T. Gardiner, A. B. Gordon, W. B. Grant, J. O. Hamilton, John Hewat, K. R. K. Iyengar, William P. S. Johnson, James Langwill, Robert D. Laurie, Archibald R. Leggate, Charles L. Louw, Alexandra B. MacCallum, David M'Carrol, Ranald MacDonald, George M. Mackay, M.A., Walter J. M'Keand, David L. MacKenna, John C. Mackenzie, Alexander K. Maclachlan, Alexander G. MacLeod, Ada J. Macmillan, Eva Meredith, Flora Morrison, Anna L. Muncaster, Kishanlal Nehru, Neil S. Neill, John G. Nicholson, M.A., Hilda M. Northcroft, Percy G. Palmer, Alfred A. W. Petrie, Bernard P. Phillips, Alfred R. Price, Donald Ross, Marguerite C. Ross, Herbert M. Spoor, Norman G. Thornley, Mary M. M'C. Turpie, David R. P. Walther, George S. Williamson, and Gordon Wilson.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. B. Rawitz, *privat docent* of Anatomy, and Dr. Klemperer, *privat-docent* of Medicine, have been granted the title of Professor.—*Budapesth:* Dr. Karl Heim has been recognised as *privat-docent* of Children's Diseases.—*Chicago (Rush Medical College):* Dr. Robert R. Bensley has been appointed Professor of Anatomy and Dr. Edwin O. Jordan, Professor of Pathological Anatomy and Bacteriology.—*Cincinnati (Miami Medical College):* Dr. Magnus A. Tate has been appointed Professor of Midwifery in succession to Dr. William H. Taylor who retires.—*Clausenberg:* Dr. B. Gárnán has been recognised as *privat-docent* of Medicine.—*Greifswald:* Dr. Georg v. Voss has been recognised as *privat-docent* of Psychiatry.—*Halle:* Dr. Ernst Siefert has been recognised as *privat-docent* of Psychiatry.—*Kiel:* Dr. Kulbs has been recognised as *privat-docent* of Medicine.—*Leipsic:* Dr. Dependorf of Jena has been appointed Extraordinary Professor of Odontology.—*Naples:* Dr. Alfredo Gatti has been recognised as *privat-docent* of Ophthalmology.—*New York (College of Physicians and Surgeons):* Dr. Francis Huber has been appointed Professor of Medicine, and Dr. Frederick Peterson Professor of Psychiatry.—*Padua:* Dr. Giuseppe Astolfoni has been recognised as *privat-docent* of Materia Medica and Pharmacology.—*Würzburg:* Dr. Faust of Strasburg has been appointed Professor of Pharmacology in succession to Dr. Straub who goes to Freiburg.—*Yale:* Dr. J. M. Flint of the University of California, San Francisco, has been appointed Professor of Surgery in succession to Dr. W. H. Carmalt who retires.

THE DEVONSHIRE HOSPITAL AND BUXTON BATH CHARITY.—The report of the annual meeting of the subscribers to this charity, which was held on July 30th under the chairmanship of the Duke of Portland, shows that the affairs of this useful and national charity are in a very satisfactory condition. The noble chairman, in his opening address, after referring sympathetically to the illness of the Duke of Devonshire and to the deaths of other prominent supporters of and workers in the hospital during the past year, paid a tribute to the 20 years of useful work rendered to the hospital by Mr. A. O. Haslewood, one of the honorary medical officers, who has recently retired. He then announced that the year had been a record one both in the number of patients treated and in the amount of subscriptions received. The patients numbered 3575, of whom 3295 were in-patients and 280 out-patients, and a sum of £3862 had been contributed by the general public. This increase in work had led to the acquisition of two houses for the purposes of a nursing home. The chairman then referred to the very wide area, practically the whole of England, from which the patients are drawn, and whilst thankfully acknowledging the support of the public urged that as there was still a slight adverse balance against the hospital, owing mainly to improvements, there should be still further increase in the subscriptions. He spoke with indignation of the many applicants for tickets who could themselves afford to subscribe to the hospital, and bore testimony to the enormous benefit that it confers on the class for which it is intended—the suffering poor. He moved the adoption of the report, which Mr. Drewry seconded. The Duke of Rutland moved the vote of thanks to the trustees, the committee of management, and the honorary officers of the hospital, and Sir Squire Bancroft proposed a vote of thanks to the chairman, which votes were carried with acclamation.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. T. M. Dolan, M.D. Durh., J.P., was presented on Aug. 16th at the Halifax workhouse with an illuminated address and a silver rose bowl by the Poor-Law officers and staff of the Halifax union. Dr. Dolan, who has been medical officer to the workhouse for 38 years, is now convalescent from a serious illness, and his colleagues and the staff of the Halifax union chose the eve of his return to active work as an appropriate time to mark their esteem for him.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.—The Rockefeller Institute for Medical Research, New York, has adopted the following series of titles for its staff: Member, Associate Member, Associate, Assistant, Fellow, and Scholar of the Rockefeller Institute, and has made the following list of appointments: Simon Flexner, Member of the institute and director of the laboratories (pathology); S. J. Meltzer, Member of the institute (physiology and pharmacology); E. L. Opie, Member (pathology); P. A. Levene, Member (biological chemistry); Hideyo Noguchi, Assistant (pathology); John Auer, Assistant (physiology); Alexis Carrel, Assistant (experimental surgery); J. W. Jobling, Assistant (pathology); Nellie E. Goldthwaite, Assistant (chemistry); C. M. A. Stine, Fellow (biological chemistry); Donald Van Slyke, Fellow (biological chemistry); Martha Wollstein, Fellow (pathology); Maud L. Menten,

Fellow (pathology); Mabel P. Fitzgerald, Fellow (bacteriology); Don R. Joseph, Fellow (physiology); Benjamin T. Terry, Fellow (protozoology); Bertha I. Barker, Scholar (pathology); and Thomas W. Clarke, Fellow (pathology). Grants to aid special researches have been made to the following: Robert M. Brown, New York; C. H. Bunting, Charlottesville, Va.; Katherine Collins, New York; Cyrus W. Field, New York; N. B. Foster, New York; Joel Goldthwaite, Boston; Holmes C. Jackson, Albany; Arthur I. Kendall, New York; Waldemar Koch, Chicago; W. G. MacCallum, Baltimore; Wilfred H. Manwaring, Bloomington, Ind.; J. W. D. Maury, New York; F. G. Novy, Ann Arbor; W. Ophüls, San Francisco; Richard M. Pearce, Albany; H. T. Ricketts, Chicago; Hermann W. Schulte, New York; Charles E. Simon, Baltimore; Aldred S. Warthin, Ann Arbor; and Francis C. Wood, New York.

DONATIONS AND BEQUESTS.—The Royal Westminster Ophthalmic Hospital has received a grant of £1000 from the trustees of the Zunz Bequest for the purpose of naming a ward in perpetuity the "Annie Zunz Ward."—The City of London Truss Society, 35, Finsbury-square, has received a legacy of £100 under the will of Mr. William Grain.—By the will of Mr. William Brindle £300 are bequeathed to the Devonshire Hospital and Buxton Bath Charity.—By the will of Mr. Harcourt Coates, L.R.C.P. Lond., M.R.C.S. Eng., a sum of about £20,000 is left to the Salisbury Infirmary for the building of a surgical ward to be called the "Harcourt and Maud Coates Ward."—By the will of Mrs. Duffield of Torquay, Torbay Hospital, Torquay, will receive £500.—The Rev. N. Shelmeldine has by will bequeathed £100 each to the Worcester Infirmary, the Tewkesbury Rural Hospital, the Pershore Cottage Hospital, and the Salford Royal Hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Report of the Police and Sanitary Committee.

THE Police and Sanitary Committee of the House of Commons, which deals with private Bills promoted by municipal and other authorities and proposing to create powers relating to police and sanitary regulations, has made a special report in which several matters referring to public health are touched on. The Committee states in it that the question of compulsory notification of births has been again before it and it has given the power to the Sunderland corporation. It has adhered to its policy of giving the clauses only in cases where there was a substantial voluntary effort to cope with the problem of infantile mortality. It refused them to one corporation which had no such organisation. In another case the promoters withdrew the clauses when the Committee required that the conditions should be precisely the same as those given last year as an experiment to the corporation of Huddersfield. The Committee also refers to its action with regard to "milk clauses." In the case of the London County Council Bill it considered carefully the question of amending the model clauses relating to tuberculous milk. It was satisfied as to the expediency of giving the County Council power to issue an order prohibiting the sale of milk from a particular cow or cows without necessarily condemning the whole dairy. This amendment it subsequently inserted in the Sunderland Corporation Bill. The committee also allowed power to the London County Council to defray the expenses of a dairyman appearing before it in obedience to its notice, but it allowed it only in view of the wide area from which the milk-supply of London is drawn.

The Prevention of Plague.

The recent correspondence which has passed between the Secretary of State for India, on the one hand, and the Governor-General of India in Council, on the other, on the subject of measures for the prevention of plague has been published as a Parliamentary Blue-book. It consists of three despatches. In the first despatch, which was dated Nov. 30th, 1906, Mr. MORLEY forwarded to the Governor-General a representation made by the Royal College of Physicians of London regarding plague in India and regarding the memorandum of the College submitted to the Government of India in the summer of 1905; and also a memorandum by Dr. W. J. R. SIMPSON as to the measures taken at Poona for dealing with the epidemic. The Government of India sent a long letter on May 2nd, 1907, to the Secretary of State in reply to his communication, and it inclosed a statement of views on the suggestions contained in the memorandum of the Royal College of Physicians of London on the plague. To this, on July 26th, Mr. MORLEY replied that the proposals for extending the general sanitary service by the increased employment of qualified natives, details of which he desired, would be cordially supported by him within reasonable limits of cost. The correspondence is voluminous and extends to 54 printed pages.

HOUSE OF LORDS.

THURSDAY, AUGUST 15TH.

The Vaccination Bill.

The Vaccination Bill was read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 14TH.

Glycerinated Calf Lymph.

Mr. WEIR asked the President of the Local Government Board, in view of the fact that a sum of £1350 was set down on the current estimates for the hire of calves for the production of glycerinated calf lymph, would he state the number of calves hired for this sum and the average age of calves so hired?—Mr. JOHN BURNS replied: A sum of £1350 is the amount estimated to be required for the hire of calves during the current year. The number of calves hired will depend on the number found to be necessary from time to time during the year and it cannot at present be stated what that number will be. The number hired up to June 30th was 203. The average age of the calves hired last year was four months.

Mr. WEIR further asked the President of the Local Government Board, in view of the fact that during the last financial year the Board paid a sum of £860 17*s.* 6*d.* in respect of the hire of 505 calves for the production of glycerinated calf lymph, and that these calves were not on hire for more than a fortnight, whether he would explain why the Board found it necessary to pay so large a sum as 34*s.* for the use of a calf for a fortnight?—Mr. JOHN BURNS answered: Before the lymph obtained from any calf is used the calf is slaughtered and the carcass undergoes dissection and examination in order that it may be ascertained that the animal was in perfect health and free from any taint of tuberculosis. The amount paid includes the sum for the depreciation of the value of the carcass owing to the post-mortem examination. It is not found practicable to obtain suitable calves at less terms than those now paid.

THURSDAY, AUGUST 15TH.

Liverpool School of Tropical Medicine.

Colonel SEELY asked the Under Secretary of State for the Colonies whether, in view of the work already accomplished by the Liverpool School of Tropical Medicine in combating tropical diseases, he could arrange for an increased grant to be made in order that the work may be further extended.—Mr. CHURCHILL answered: A further grant will be made of which the Secretary of State will be able to specify the amount after consultation with the Treasury.

A Medical Bureau at the Board of Education.

Sir PHILIP MAGNUS asked the President of the Board of Education whether he would state what would be the constitution and *personnel* of the medical bureau to be attached to the Board of Education with the view to giving guidance and advice to the medical officers to be appointed by local education authorities to undertake the medical inspection of the children in public elementary schools.—Mr. MCKENNA said in reply: I am in communication with the Treasury on this matter, but I am not yet in a position to make any statement.

The Landing of Cases of Infectious Disease.

Mr. WHITEHEAD asked the President of the Board of Trade whether his attention had been called to the fact that three passengers on board the White Star liner ss. *Persic*, which sailed from Durban on March 27th, were forced to land at Plymouth, notwithstanding that they intended to proceed to Tilbury, without being informed of the risk which one of them ran from exposure to a railway journey owing to the fact that he was suffering from typhoid fever; whether the fact of this disease having occurred on board was notified to the port authority or Board of Trade; whether it ought to have been notified, and to whom; whether the summary landing of these passengers at Plymouth relieved the ship's officers from any duty of reporting the disease on arrival at Tilbury or in any way expedited the discharge of the vessel in the port of London; whether he proposed to take any action in the matter; whether his department, or other authority, had any power to prevent the spreading of disease in this way in this country; and whether, having regard to the loss and expense incurred by several persons through the above events, he would cause full inquiry to be made into the whole matter.—Mr. JOHN BURNS (in a written answer) replied: Perhaps I may be allowed to answer this question. My attention has been called to the case mentioned in it and I have made inquiry with regard to it. The passengers referred to left the ship at Plymouth under the advice of the ship's medial officer but I do not understand that they were forced to do so. The medical officer appears not to have regarded the case as one of typhoid fever but as extremely suspicious. He states that he reported the case at Plymouth to the pilot, giving him the principal symptoms as a guide for those ashore, and that the pilot assured him the case would be looked to. I am informed that the discharge of the vessel was not in any way expedited by the landing of the passengers at Plymouth. The Local Government Board has informed the steamship company that in its opinion the ship's medical officer should either have sent an intimation in writing to the port medical officer of health respecting the case or should have mentioned it on the certificate given by him with regard to the health of the passengers and crew. The Board has suggested to the company that it should be made clear to the surgeons of their ships that in all cases where suspicion exists of infectious disease on ships arriving in any port information of the facts should be sent in writing by the surgeon to the port medical officer of health. The company has given an assurance that in future this will be done.

Public Health (Regulations as to Food) Bill.

Late at night the House went into committee on the Public Health (Regulations as to Food) Bill, Mr. EMMOTT in the chair.

In the course of a discussion on an amendment moved by Mr. GRETTON

Mr. JOHN BURNS made a general statement as to the policy which the Local Government Board would pursue in administering the Bill. Regulations were to be made under the Bill and these would lie for 40 days on the Table of Parliament before they came into force. Any public body would be able to obtain copies of the rules as soon as they were made. Any apprehended hardships would be met by the Local Government Board in precisely the same way

as had been done during the last 11 years in dealing with the regulations for the import of food and the shipping trade. With regard to the necessity for the regulations, he had been asked what would be done in the case of mineral waters. He would point out that in the East-end of London certain classes of mineral waters were made under such conditions that honourable Members, when they realised what these were, would agree that these waters should be brought within the scope of the Bill. The right honourable gentleman went on to refer to a case where the work of manufacture was carried on by a foreigner in Stepney in a yard beside a water-closet. The water was exposed to filthy contamination and some of the bottles had masses of matter in them that looked like mould. Several times last summer bottles filled on these premises had been returned by customers, and when Stepney people complained of bottles being dirty they were very dirty indeed. Frequently it happened that a person rented two rooms and started a mineral water factory. There was no machinery so that the place was not a workshop and it was not a factory. The sanitary conditions for the inmates might comply with the conditions of the local sanitary inspector but no other inspector had any power over premises of this kind. What the Local Government Board wanted to do was to supplement the powers of the local medical officer of health so that he might see that the conditions were not fraught with danger to the people engaged and to the consumers. He had been asked whether under this Bill it would be possible for a medical officer or an inspector to go into any kitchen. He would ask honourable members' attention as to the necessity of anyone going into a kitchen. In the district of what was supposed to be one of the best local authorities in the country there were restaurants where food was prepared for consumption and sale. In these the water-closet accommodation was reported to be in a defective condition and in 35 cases the water-closet communicated with the kitchen, and in some cases the water-closet was off the kitchen without ventilation. If the water-closet itself satisfied the sanitary inspector he had no power to prevent the preparation, storage, and distribution of food. They had, in London, districts where some of the choicest morsels and most expensive classes of food and drink were prepared in conditions which were absolutely intolerable and abominable. He had been asked what organisation was going to be resorted to for carrying out the regulations. The Local Government Board did not intend to create any new organisation. They did not intend to do anything in derogation of what any sanitary authority had the power to do. They intended to act through the existing medical officers and the local authorities for the purpose of enforcing these regulations. The local authorities with their existing staffs and their present expenditure would be able to do this work concurrently with much of their sanitary work. The Local Government Board did not intend to use these regulations as a means of harassing any trader or manufacturer in carrying on his business in a decent way. After the scandals which had been revealed in the last year or two the Board would not be doing its duty unless it sought for the powers contained in the Bill, and he asked honourable members to trust the Board in the regulations which were made under it. It was not intended that the Bill should apply to private houses.

Mr. GRETTON having withdrawn his amendment,

Mr. JOHN BURNS moved an amendment to make it clear that the Bill should not apply to ordinary private houses.

This was agreed to.

Mr. JOHN BURNS moved the following new clause: "All regulations made under this Act shall be laid as soon as may be before Parliament, and the Rules Publications Act, 1893, shall apply to such regulations as if they were statutory rules within the meaning of Section 1 of that Act, and that Act as so applied shall, notwithstanding anything in Sub-section 5 of Section 1 thereof, extend to Scotland, with the substitution of a reference to the *Edinburgh Gazette* for the reference to the *London Gazette*."

The clause having been agreed to was embodied in the Bill which then passed through Committee.

FRIDAY, AUGUST 16TH.

Public Health (Regulations as to Food) Bill.

This Bill as amended was considered on report.

Mr. JOHN BURNS, when the report stage, which was formal, had been completed, appealed to the House to give the Bill a third reading. He repeated his assurance that the regulations under it would be drawn up by the Local Government Board with full consideration for all the legitimate interests concerned.

The Bill was then read a third time.

MONDAY, AUGUST 19TH.

The Medical Bureau at the Board of Education.

Sir PHILIP MAGNUS asked the President of the Board of Education whether, having regard to the fact that Clause 10 of the Education (Administrative Provisions) Act would enable local authorities to institute a system of periodical measurement of the children in attendance at public elementary schools, he would arrange, with a view to securing uniformity of method among local authorities desirous of availing themselves of the powers conferred by the Act, that instructions should be issued by the Board as to the best means of taking such measurements; and whether he would arrange that the data obtained should be duly tabulated at the offices of the medical bureau of the Board for information and reference.—Mr. MCKENNA answered: One of the duties to be undertaken by the Board of Education in connexion with Clause 10 of the Bill referred to, when it has become an Act, will be the careful collating, tabulating, summarising, and publishing of the most important results obtained from the medical inspection carried out by local authorities in the public elementary schools in their respective areas. I am considering in what way this duty may most effectively be carried out, but I think it would be highly inadvisable to make any decision in regard to it, until I have had the advantage of the medical advice which it will be necessary for the Board to become possessed of when the Bill has become law.

TUESDAY, AUGUST 20TH.

The Medical Officer at the Tokio Embassy.

Sir WILLIAM COLLINS asked the Secretary of State for Foreign Affairs whether the medical officer to the British Embassy at Tokio was a legally qualified medical practitioner in accordance with the requirements of The Medical Act, 1858.—Sir EDWARD GREY furnished the following written answer: I must remind the honourable Member that on June 4th last, in reply to a similar question, I informed him that I was not prepared to make any statement involving an interpretation of any part of the Medical Acts. I must adhere to what I then said.

The Mortality of Panama Labourers.

Mr. STAVELEY HILL asked the Under Secretary of State for the Colonies whether he would make inquiry into the rate of mortality among the labourers employed on the Panama Isthmian Canal.—Mr. CHURCHILL replied: I understand that the Secretary of State for Foreign Affairs has called for an official report but has not yet received it. I may mention, however, that very beneficial results have followed from the strict enforcement of sanitary laws and anti-mosquito regulations in the Canal zone and from the application of the new knowledge of tropical diseases to local conditions. In October, 1884, there were 21 deaths and 84 cases of yellow fever amongst 2706 non-immunes in a total of 19,243 men employed in the construction of the Canal. In October, 1905, among 4000 non-immunes in a total of 22,000 employees there was no death and only one case. This is an excellent instance of the inestimable value of the kind of research work which is being conducted by the Liverpool School of Tropical Medicine and other institutions of a similar kind.

The Plague Statistics.

Mr. REES asked the Secretary of State for India whether he would consider the advisability of giving, in Official Publications and Answers, together with the actual figures relating to plague mortality, the figures per mille of the population of India, in order that comparison might not be made with a population approximating to that of the United Kingdom.—Mr. MORLEY answered: I will bear in mind the honourable Member's suggestion in cases in which the additional information would be pertinent and correct and might prevent misleading comparisons. When, as frequently happens, plague is practically confined to a province, a per mille ratio to the population of India would itself be misleading.

WEDNESDAY, AUGUST 21ST.

Lead Poisoning in the China Trade.

Mr. ALDEN asked the Secretary of State for the Home Department whether he was aware that there were 12 cases of lead poisoning in the china and earthenware trade during last month; whether this was above or below the monthly average of such cases in this trade; and what steps he proposed to take with a view to diminishing the number of such cases.—Mr. GLADSTONE replied: It is the case, as stated in the question, that 12 cases of lead poisoning were reported to the Home Office in this industry in July. The number is above the average monthly number of cases during 1906 and the first six months of 1907; but, as my honourable friend will understand, the numbers fluctuate to some extent from month to month, and the total number of cases for the first seven months of this year is considerably below the number for the corresponding months in 1906—50 as compared with 68. The whole question of lead poisoning both in the potteries and in other trades is under my consideration.

BOOKS, ETC., RECEIVED.

BERGMANN, J. F., Wiesbaden. (F. BAUERMEISTER, 49, Gordon-street, Glasgow.)

Urologisch-Kystoskopisches Vademecum. Von Dr. Richard Wohlauer, Berlin, Ehem. Assistent der Klinik und Poliklinik von weiland Geh.-Rat Prof. Dr. Nitze. Price M.3.60 or 3*s.* 9*d.*

Frankfurter Zeitschrift für Pathologie. Herausgegeben von Eugen Albrecht. Erster Band. Erstes Heft. Festschrift zum 200. Geburtstage von Johann Christian Senckenberg: 28, Februar, 1907. Price 7*s.*

Descriptive Biochemie, mit besonderer Berücksichtigung der Chemischen Arbeitsmethoden. Von Dr. Sigmund Fränkel, Dozent für Medizinische Chemie an der Wiener Universität. Price M.17, or 17*s*,

BETZ, FRANK S., Hammond, Ind., U.S.A. (A. B. WALSH AND CO., 96, Great Portland street, London, W.)

The Abdominal and Pelvic Brain, with Automatic Visceral Ganglia. By Byron Robinson, B.S., M.D, Chicago, Illinois. Price 16*s.*

BRAUMÜLLER, WILHELM, Wien und Leipzig.

Anatomie und Aetiologie der Genitalprolapse beim Weibe. Von Dr. Josef Halban, Privat-dozent für Geburtshilfe und Gynäkologie; und Prof. Dr. Julius Tandler, Prosektor der I. Anatomischen Lehrkanzel, in Wien. Aus dem I. Anatomischen Institute in Wien. Price, paper, K.13, or M.15; bound, K.21, or M.17.50.

CHURCHILL, J. AND A., 7, Great Mariborough-street, London, W.

Eye Strain and Eyesight. How to Help the Eye and Save the Sight. By John Grimshaw, M.D., B.S. Lond., D.P.H. Camb., &c. Price 1*s.* net, or cloth bound 2*s.*

Anatomical Terminology. With Special Reference to the (BNA). By Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University, Baltimore (formerly Professor of Anatomy, Rush Medical College, University of Chicago). With Vocabularies in Latin and English and illustrations. Price 5*s.* net.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by Henry Morris, M.A. and M.B. Lond., F.R.C.S. Eng., President of the Royal College of Surgeons of England; and J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan. Fourth edition, revised and enlarged. Price 30*s.* net.

Lessons in Disinfection and Sterilisation. An Elementary Course of Bacteriology, together with a Scheme of Practical Experiments illustrating the Subject-Matter. By F. W. Andrewes, M.A., M.D. Oxon., F.R.C.P. Lond., D.P.H. Cantab., Lecturer on Pathology, Pathologist, and Sanitary Officer to St. Bartholomew's Hospital, London. Second edition. Price 3*s.* 6*d.* net.

JOHN BALE, SONS, AND DANIELSSON, LIMITED, 83–91, Great Titchfield-street, Oxford-street, London, W.

Stray Leaves, and Some Fruit on Cancer and Tuberculosis. Based upon Physiologic Chemical Principles. Being a Thesis in Two Parts. By Henry D. McCulloch, M.B. Glasg., Fellow of the Society of Tropical Medicine and Hygiene, London. Price 10s. 6d. net.

Some of the Clinical Aspects of Pneumonia. Being the Substance of Clinical Lectures and Demonstrations delivered at the West London Hospital to the Post-Graduates attending the Practice of the Hospital. By Donald W. C. Hood, C.V.O., M.D. Cantab., F.R.C.P. Lond., Senior Physician to the Hospital. Price 7s. 6d. net.

The Haslemere Museum Gazette. A Journal of Objective Education and Field-Study. Conducted by Jonathan Hutchinson, F.R.C.S., LL.D., F.R.S., Assisted by E. W. Swanton, Esq., Curator of the Haslemere Museum. Vol. I. 1906 and 1907. Price 7s. net.

KIMPTON, HENRY, 13, Furnival-street, Holborn, London, E.C. (STENHOUSE, ALEXANDER, 40 AND 42, University-avenue, Glasgow.)

The Midwives' Pocket Register and Case Book. By R. J. Blackham, L.R.C.P., L.M. Rotunda. D.P.H., R.C.P. Lond., R.C.S. Eng., Major, Royal Army Medical Corps. Price not stated.

LINDLEY, PERCY, 30, Fleet-street, London, E.C.

The Great Eastern Railway Company's Tourist Guide to the Continent. Edited by Percy Lindley. Price 6d.

LONGMANS, GREEN, AND Co., 39, Paternoster-row, London, E.C.

Gardening in Town and Suburb. By Harry H. Thomas, Assistant Editor of "The Garden." Price 2s. 6d. net.

Two New Worlds. I. The Infra-world. II. The Supra-world. By E. E. Fournier d'Albe, B.Sc., Author of "The Electron Theory." Price 3s. 6d. net.

MACMILLAN COMPANY, New York. (MACMILLAN AND Co., LIMITED, London.)

The Major Symptoms of Hysteria. Fifteen Lectures given in the Medical School of Harvard University. By Pierre Janet, M.D., Professor of Psychology in the Collège de France, Director of the Psychological Laboratory in the Clinic of the Salpêtrière. Price not stated.

MURRAY, JOHN, Albemarle-street, London, W.

Hygiene of Nerves and Mind in Health and Disease. By August Forel, M.D. Translated from the German by Austin Aikins, Ph.D. Price 6s. net.

PATON, J. AND J., 143, Cannon-street, London, E.C.

Paton's List of Schools and Tutors. (An Aid to Parents in the Selection of Schools.) Tenth Annual Edition, 1907–1908. Price 1s. 6d.

POINAT, A., 12, Rue Jacob, Paris.

Athérome Aortique Expérimental. État Actuel de la Question. Par le Dr. L. Thevenot. Price not stated.

PRIORY PRESS, THE, 70, High-street, Hampstead, London, N.W.

The Relation of Man to the Animal World. By Sir Samuel Wilks, Bart., M.D., LL.D., F.R.S. Price not stated.

PULMAN, GEORGE, AND SONS, LIMITED, 24–26, Thayer-street, Manchester-square, London, W.

Ophthalmia Neonatorum. With Especial Reference to its Causation and Prevention. (The Middlemore Prize Essay of the British Medical Association, 1907). By Sydney Stephenson, M.B., C.M., Ophthalmic Surgeon to Queen Charlotte's Hospital, London, &c. Price not stated.

RUDEVAL, F. R. DE, 4, Rue Antoine Dubois, Paris.

Précis d'Électricité Médicale. Par E. Castex, Agrégé des Facultés de Médecine, Professeur de Physique Médicale à l'Université de Rennes, Chef du Service d'Électrothérapie et de Radiographie à l'Hôtel-Dieu. Deuxième Édition, revue et augmentée. Price Fr.12.

Précis de Pharmacologie. Art de formuler, Matière Médicale, Indications Thérapeutiques et Posologie. Par le Dr. Allyre Chassevant, Professeur agrégé à la Faculté de Médecine de Paris. Price Fr.10.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Étude Histo-Chimique et Cytologique des Crachats. Par le Dr. S. Israëls de Jong, Ancien Interne Lauréat des Hôpitaux de Paris. (Travail du Laboratoire de Bactériologie de la Faculté et de la Clinique Médicale Laënnec.)

Introduction à la Thérapeutique Naturiste par les Agents Physiques and Diététiques. Par le Dr. Fernand Sandoz. Price Fr.6.

STUBER, A. (CURT KABITZSCH), Würzburg.

Die Medizinischen Handschriften der kgl. Universitätsbibliothek in Würzburg. Beschreibendes Verzeichniss mit Literarhistorischen Anmerkungen. Von Dr. Ign. Schwarz. Nebst zwei Anhängen (Anatomia Cophonis. Anatomia Richardi Salernitani). Price M.7.

SWEET AND MAXWELL, LIMITED, 3, Chancery-lane, London, W.C. (THE CARSWELL Co., LIMITED, 30, Adelaide-street East, Toronto.)

Employers' Liability to their Servants at Common Law, and under the Employers' Liability Act, 1880, and the Workmen's Compensation Act, 1906. By C. Y. C. Dawbarn, M.A., Barrister-at-Law, Inner Temple and Northern Circuit. Third edition. By the Author. With Notes on the Canadian Law. By A. C. Forster Boulton, M.P., of the Inner Temple, South-Eastern Circuit, and Osgoode Hall, Toronto, Barrister-at-Law. Price £1 1s.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Die Krankheiten der Nase und Mundhöhle sowie des Rachens und des Kehlkopfes. Ein Lehrbuch für Praktische Aerzte und Studierende. Von Dr. Alfred Bruck, Berlin. Price not stated.

W. B. SAUNDERS COMPANY, Philadelphia and London.

A Laboratory Manual of Invertebrate Zoölogy. By Gilman A. Drew, Ph.D., Professor of Biology at the University of Maine; in Charge of Zoölogical Instruction at the Marine Biological Laboratory, Woods Holl, Massachusetts. With the Aid of the Zoölogical Staff of Instructors of the Marine Biological Laboratory, Woods Holl, Mass. Price 5s. net.

Gynecology and Abdominal Surgery. Edited by Howard A. Kelly, M.D., F.R.C.S. (Hon.) Edin., Professor of Gynecologic Surgery at the Johns Hopkins University; Gynecologist to the Johns Hopkins Hospital, Baltimore, and Charles P. Noble, M.D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia; Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Volume I.

VOGEL, F. C. W., Leipzig.

Atlas der Klinischen Mikroskopie des Blutes. Zweite Auflage. Bearbeitet von Privatdozent Dr. E. Meyer und Professor Dr. H. Rieder in München (Unter Mitwirkung von Dr. G. Maurer, München). Price not stated.

WOOD, WILLIAM, AND COMPANY, New York.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890–1903. Fifth edition, revised. Price $2.00 net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ARCHIBALD, JOHN W., M.B., Ch.B., has been appointed on the Resident Medical Staff of the Royal Infirmary, Aberdeen.

BALL, W. GIRLING, F.R.C.S. Eng., has been appointed Assistant Surgeon to the City of London Truss Society.

GASK, G. E., F.R.C.S. Eng., has been appointed Surgeon to the City of London Truss Society.

GORHAM, P. C., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Clifden District of the County of Galway.

HARVEY, FRANK, M.R.C.S., L.S.A., has been appointed Public Vaccinator for the St. Issey and St. Breock Districts by the St. Columb (Cornwall) Board of Guardians.

HUSTLER, G. H., M.B., Ch.B. Leeds, has been appointed Government Medical Officer for Fiji.

NIVEN, A. M., M.B., Ch.B., has been appointed on the Resident Medical Staff of the Royal Infirmary, Aberdeen.

STEWART, ALEX., M.B., Ch.B., has been appointed on the Resident Medical Staff of the Royal Infirmary, Aberdeen.

WALFORD, HAROLD R. S., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the Coventry and Warwickshire Hospital, Coventry.

WILKINS, ERIC M., M.D. Vict., M.R.C.S., has been appointed Assistant Medical Officer to the Metropolitan Asylums Board.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BEDFORD COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

BOMBAY MUNICIPALITY.—Two Assistant Health Officers. Salaries Rs. 750, rising to Rs. 1000, and Rs. 600, rising to Rs. 750 per mensem respectively.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with board and lodgings.

BURY INFIRMARY.—Junior House Surgeon. Salary £80, increasing to £90, with board, residence, and attendance.

CAIRO, SCHOOL OF MEDICINE (EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION).—Assistant to the Professor of Pathology. Salary £E. 320 per annum.

CANCER HOSPITAL, Fulham-road, S.W.—Two Assistant Anæsthetists. Honorarium of 25 guineas each.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum, with board, lodging, and washing.

DERBY COUNTY ASYLUM, Mickleover.—Junior Assistant Medical Officer. Salary £120, rising to £150 per annum, with apartments, board, washing, and attendance.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £60 per annum, with residence, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £40 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer to the Casualty Department, also Second Medical Officer, both for six months, renewable. Salary of former at rate of £100 and of latter at rate of £40 per annum, with luncheon and tea. Also House Surgeon for six months. Salary £25, with board, residence, laundry, &c.

EDMONTON WORKHOUSE, Upper Edmonton.—Assistant Medical Officer. Salary £180 per annum, and residential allowances.

EGYPTIAN GOVERNMENT, KASR-EL-AINY HOSPITAL.—Resident Medical Officer. Pay £250 a year, with quarters, servants, washing, coals, and light.

EPSOM, SURREY, LONDON COUNTY ASYLUM, Long Grove.—Fourth Assistant Medical Officer. Salary £180 a year, with board, apartments, and washing.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £90 per annum, with board, lodging, and washing.

GRIMSBY AND DISTRICT HOSPITAL.—Resident House Surgeon. Salary £120 per annum, with board, lodging, and washing.

HEMEL HEMPSTEAD, WEST HERTS INFIRMARY.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50, with board and lodging.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary £50 per annum, with board, apartment, and washing.

LEICESTER ISOLATION HOSPITAL.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and washing.

LEICESTER POOR-LAW INFIRMARY.—Resident Assistant Medical Officer. Salary £120 per annum, with rations apartments, and washing.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Physicians and Two House Surgeons. Salaries at rate of £60 per annum, with board and residence.

LOCHGOILHEAD AND KILMORICH PARISHES.—Medical Officer. Salary £100 per annum.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, lodgings, and washing.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 a year, with rooms, attendance, board, and washing.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Third and Fourth House Surgeons for six months. Salary £25, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried, for six months. Salary at rate of £80 a year, with board and lodging.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80, with residence, board, and washing.

ORKNEY, PARISH OF ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £51 per annum.

PAISLEY, RICCARTSBAR ASYLUM.—Assistant Resident Medical Officer. Salary £100 per annum, with board and apartments.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence and board.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHREWSBURY, SALOP INFIRMARY.—House Physician. Salary at rate of £50 per annum, with board and apartments.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary £40 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Medical Officer. Salary £100 per annum, with board, washing, and apartments.

WALLASEY URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary £500, increasing to £750.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar and Pathologist.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons, tenable for six months.

YORK DISPENSARY.—Two Resident Medical Officers, unmarried. Salary £120 a year, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Shere, in the county of Surrey.

Births, Marriages, and Deaths.

BIRTHS.

COOKE.—On August 15th, at Bournemouth, the wife of Francis H. Cooke, M.R.C.S., of a son.

WALES.—On August 14th, at Mevell Hall, Gargrave in Craven, the wife of Herbert Wales, M.A., M.B., B.C., of a son.

MARRIAGES.

FORRESTER—HARTNOLL.—On August 14th, at St. John's, Potters Bar, Charles Carmichael Forrester, M.D., to Adeline Braund, youngest daughter of the late James Hartnoll of Ganwic, Barnet.

NORMAN—HARRISON.—On August 7th, at the Parish Church, Holton St. Mary, Suffolk, J. Clement A. Norman, M.R.C.S., L.R.C.P., to Maud Welfitt, eldest daughter of George Tonkin Harrison, of The Hall, Holton St. Mary, Suffolk.

DEATH.

BROWN.—On August 12th, aged 50 years, Walter Henry Brown, M.Sc. Leeds, F.R.C.S.I., M.R.C.S. Eng., of Highfield House, Headingley, Leeds, Consulting Surgeon, Leeds General Infirmary.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE USE AND ABUSE OF ALCOHOL.

IN THE LANCET of March 30th, 1907, we published a pronouncement with reference to the use of alcohol signed by a group of representative medical men. We have been receiving from America lately by post after post photographic reproductions of this article, which appear to have been disseminated widely in the States by a body called the National Wholesale Liquor Dealers' Association of America. We are powerless to stop this proceeding and must submit also to the further misrepresentation, which is quite sure to be made, that we are in league with the National Wholesale Liquor Dealers' Association of America. Our position in regard to this important pronouncement is exactly defined by an introductory paragraph appearing in our columns simultaneously, and we are constrained to believe that the assertions attributing to us an interest in publishing the document far and wide are made with knowledge of their incorrectness.

HERBALIST HUMBUGS.

A NON-MEDICAL correspondent, writing in a recent issue of the *Sheffield Daily Telegraph*, holds up to proper reprobation the preposterous pretensions of herbalising quacks to an exclusive knowledge of the medicinal properties of vegetable remedies. He takes for his text a pamphlet which he has received from a herbalist company trading under the title of "doctor," from which he quotes rubbish of the following nature: "The medical profession despise herbs, and use dangerous minerals and poisons instead, to the great injury of their patient." Further extracts from this pamphlet assert that "milk is grass in a liquid condition," whilst we read that the flesh of the cow is "solid extract of herbage." The correspondent dilates at some length on the flourishing condition of modern quackery which is undoubtedly largely fostered by the broadcast distribution of this sort of lying pamphlet. We have frequently given expression to such words as those with which he concludes his letter: "The charlatan's only qualification is that he can produce a badly written pamphlet based upon a diseased notion of what medicine ought to be. That the State should permit the wholesale deception is a scandal, nay, it is a tragedy." A large part of the letter is occupied in a statement of the prior claims of the medical profession to treat disease, which many people may read with advantage, but this champion of the profession would not have weakened his cause if he had omitted to write: "There is not a single herb in the world of any value unknown to medical and pharmaceutical science." This is a somewhat too universal negative for ready acceptance. We entirely agree, however, with the remark that "the average herbalist's method of extracting the medicinal virtues from an herb are crude, unscientific, and very unreliable."

HEALTH AND HOSPITALS IN GIBRALTAR.

A REPORT on the Blue-Book of Gibraltar for the year 1906 has been prepared by Mr. Frederick Evans, colonial secretary of the colony, and presented by command of His Majesty to both Houses of Parliament. The report states *inter alia* that the sanitary condition of Gibraltar is steadily improving. The death-rate, which in 1905 was 18·17 per 1000 of the estimated population (25,140), compares very favourably with that of the crowded towns of England and Wales. The epidemic of small-pox which commenced in October, 1905, proved to be one of the severest on record. Special measures were adopted to cope with it and all possible precautions were taken to prevent the disease being spread. When the east wind, or "Levanter," prevails during the summer months a heavy cloud hangs over the rock and the sheltered position of the town at the base of the western side of the rock makes the heat very oppressive; otherwise the sub-tropical climate is an agreeable one to reside in. The temperature is highest in the months of June, July, August, and September. The prevailing wind is easterly, although it frequently blows with considerable force in the winter months from the south-west and north-west. The mean temperature for the year was 65·1° F. Statistics taken over a period of 115 years show the average annual rainfall to be 33·33 inches. A hospital for the treatment of the sick was first established at Gibraltar in 1815, when an old building known as the "Blue Barracks" was repaired at Government expense and handed over to the public for use as a civil hospital. It was maintained by public subscriptions, assisted by an annual grant from the Government and by the contributions of paying patients. A tax was also levied on flour in aid of the hospital funds. Every vessel anchoring in the bay was required to pay 3*s.* 3*d.* Lighters, ferry-boats, &c., paid 4*s.* 4*d.* annually. In 1880 the foundation-stone of a new hospital on the same site was laid by the Governor, General Lord Napier of Magdala. The building was completed in 1888 at a cost of £24,000, which was met from Government funds. The building consists of several separate blocks, each block having been brought into use as completed. Until 1885 the hospital was divided into separate divisions: Protestant, Roman Catholic, and Hebrew. Each was under separate management, there being a deputy governor of each persuasion. In that year an Ordinance was passed under which a

board of management consisting of five deputy governors was constituted. In 1889, as the result of a commission appointed to inquire into the manner in which the hospital was managed, an Ordinance was passed making the hospital a Government institution to be appointed by the Governor and under rules and regulations to be approved by the Governor. This Ordinance, slightly amended, is still in operation. The board of commissioners consists of a chairman (the colonial secretary) and five others, of whom not less than three, including the chairman, must be civil officers of the colony. A surgeon, an assistant surgeon, and a dispenser reside in the hospital. There are also a resident matron and five nursing sisters, obtained through the medium of the Colonial Nursing Association in England. An additional block was erected in 1904 at a cost of £3691. This enabled the Government to provide a new "home" with improved accommodation for matron and sisters and separate wards for female lock cases. A public dispensary is maintained at the hospital, at which persons certified to be indigent receive medical advice and medicine gratis. Persons certified to be in straitened circumstances are given medical advice and medicine on payment of a small fee. At one time the Spanish Government made an annual grant of 1250 pesetas towards the funds of the hospital, in consideration of which Spanish subjects resident in the neighbouring town of Linea received gratuitous medical treatment on the production of certificates of indigency signed by the Alcalde (Mayor) of that town. In 1891, shortly after the hospital became a Government institution, this grant was discontinued at the request of the Gibraltar Government. The practice of affording gratuitous medical treatment to residents of Linea, however, still obtains. A small building, with accommodation for two beds, was erected in 1884 at an isolated spot on the North Front. It was intended for the receipt of small-pox cases landed from ships and was considered to be a branch of the civil hospital. Two wards of four beds each were added in 1889. Until 1893 small-pox cases occurring in the town were treated in the segregation wards of the civil hospital. In that year it was decided that they should be received into the branch hospital at the North Front, but no additional accommodation was provided. During the epidemic of 1896 temporary provision was made for eight or ten more beds by the erection of a wooden building. The naval and military authorities have recently added two buildings with eight beds each for the reception of military and naval cases. The Colonial Government contemplates making additions and improvements to its buildings at [an early date. The hospital is in charge of an assistant surgeon, subject to the general supervision of the surgeon of the Colonial Hospital. The number of patients under treatment at the Colonial Hospital in 1906 was 632 (495 males and 137 females). Of these 423 were discharged as cured, 84 as relieved, and 28 as not improved. There were 46 deaths. In the small-pox hospital there were 122 under treatment during the year (82 males and 40 females). Of these 99 were discharged cured and 11 died. The average stay of those who were discharged cured was about 42 days. The number of persons seeking treatment at the Colonial Hospital as out-patients continues to increase, no less than 12,367 persons (of whom 982 came from Linea) having been treated in 1906, as against a total of 10,584 in 1905 and 6397 in 1904. New buildings were erected in 1884 for the special purposes of a lunatic asylum, which was placed under the direction and management of the police magistrate, subject to the control of the Governor. There is a resident superintendent and the surgeon of the Colonial Hospital makes daily visits. Patients are admitted on the order of the police magistrate and certificate of any two duly qualified medical practitioners. There were 46 patients under treatment during last year.

BIER'S TREATMENT.

To the Editors of THE LANCET.

SIRS,—Will some kind reader please tell me where I can find a detailed account of Bier's treatment?

I am, Sirs, yours faithfully,

August 17th, 1907. MAC.

POPULAR BACTERIOLOGY.

WE fear that the Paris correspondent of the *Daily Telegraph* has been the victim of a "scientific" hoax; if not, he must have seriously misunderstood the information which was given him about the bacteriological flora found in a first-class carriage on the Bordeaux "rapide" train. He summarised the result of this inquiry in a recent issue of the *Daily Telegraph* and described the germs found in the carriage as follows: (1) penicillium (*sic*) glaucum, which produces appendicitis; (2) Asperbillus (*sic*) niger, which affects the digestion; (3) Bacterium Termo, or Proteus zuckeri, which generally weakens the human body (this seems a mild way of putting it); (4) stapylococcus (*sic*) pyogenes aureus, which begets phlegmon; (5) Micrococcus tetragenos of tuberculosis; (6) Koch's bacillus of tuberculosis; (7) Klebsloffler's (*sic*) bacillus of diphtheria; (8) the coli bacillus which produces typhoid; (9) streptococcus lanceolatus niger, the microbe of pneumonia; and (10) Legros' bacillus septicus, which inflicts gangrene. Thus "bad begins but worse remains behind," for the playful comment is appended, "Dr. Legros' charmingly named 'sceptical bacillus' may finish you off. The sceptical microbe gives you gangrene, an affection of which there is no possible doubt." If the contributor to our esteemed contemporary had been inoculated with the "sceptic" microbe he might have avoided making the above errors.

THE SEVEN STAGES OF DRINK.

AN interesting medical pendant to Shakespeare's great picture of the seven ages of man was furnished by a medical man when giving evidence at Marylebone police court recently. The practitioner, as reported in the daily press, took for his text not mankind in general but the drunken individual, and described seven stages in his evolution. He began by stating that he had found the defendant in "a mellow, comfortable state of drunkenness and recovering from irritation." This analytical description led Mr. Plowden, the officiating magistrate, to inquire further into the normal course of drunkenness and he drew from the witness the following list of the successive stages of an attack of alcoholic intoxication: 1, irritable; 2, mellow and comfortable; 3, pugnacious; 4, affectionate; 5, crying; 6, collapsed and incapable. But even this did not satisfy Mr. Plowden and he induced the witness to add his seventh stage as a finishing touch: "If you give them a little more—death." The magistrate was very interested and expressed a hope that the defendant would profit by the professional instruction she had heard. The medical man certainly produced a very complete composite clinical picture, but all the cases of drunkenness do not, of course, pass through the first six stages; the average drunkard exhibits one or two of them to the exclusion of the others, as no doubt the witness would have said had he been asked.

THE VALUE OF BLOOD SERUM IN SURGERY.

IN connexion with an article on the Use of Animal Blood Serum in Surgery, by Mr. W. Stuart-Low, which was published in THE LANCET of May 4th, 1907, p. 1221, our attention has been drawn to a statement that bovinine, which is a defibrinated bullock's blood carefully preserved and containing all the elements of nutrition present in arterial blood, has been employed by many surgeons throughout the United States as a topical dressing in granulating surfaces and chronic ulcerations as well as in general tissue necroses. It is claimed that while serum albumin is of undoubted value yet its field of usefulness as compared with bovinine is narrow. While bovinine is sterile it is said that it not only protects the newly forming granulations but to some extent also supplies nutritive agents which encourage the healing process. Bovinine is simply applied to the surface of the wound or skin-graft, the sterile gauze being retained in position by a sterile gauze bandage kept constantly wet with bovinine. This plan prevents the dressing from becoming irritating and offensive which is often the case when it is protected by oiled muslin or a silk or rubber tissue.

Provincial.—D was right in going to the case in the circumstances and evidently he is ready to hand over the case to E. If, however, the patient insists that D continue in attendance she has a right to do so.

Interested.—Our correspondent must not advertise his invention as Dr. ——'s patent tooth brush.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St.

George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (31st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—12 noon: Pathological Demonstration. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.

TUESDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Diseases of the Skin. 5 P.M.: Clinical Lecture.

WEDNESDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations.

THURSDAY (29th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.

FRIDAY (30th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Diseases of the Skin. 5 P.M.: Lecture:—Cases of Skin Disease.

SATURDAY (31st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1907 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 22nd, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 16	29·89	N.W.	0·06	123	68	54	54	57	Cloudy
,, 17	29·85	W.	0·02	114	72	57	57	63	Cloudy
,, 18	29·81	S.W.	0·31	102	69	56	58	61	Cloudy
,, 19	29·85	S.W.	...	116	68	54	55	58	Cloudy
,, 20	30·00	W.	0·05	114	61	50	53	57	Cloudy
,, 21	30·30	N.W.	0·10	109	65	49	51	55	Cloudy
,, 22	30·33	N.W.	...	107	64	55	53	58	Cloudy

During the week marked copies of the following newspapers have been received:—*Daily Express, Morning Advertiser, Broad Arrow, Pall Mall Gazette, Hackney Mercury, Plymouth Morning News, Kensington News, Chiswick Times, Essex Times, Hertfordshire Standard, Essex Newsman, Gresham Standard, Oxford Chronicle, Glasgow Weekly Herald, Wellingborough News, Oxford Gazette, Leamington Spa Courier, Midland Evening News, Norwich Press, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. B Anningson, Cambridge; Dr. John Hill Abram, Liverpool; Messrs Aked and Aked, Lond.; Anglo-American Pharmaceutical Co., Croydon; Aesan Co., Birmingham, Manager of; Messrs. Allen and Hanburys, Lond.; Mr. C. S. Ascherson, Lond.

B.—Mr. E. Baker, Birmingham; Mr. H Burrows, Lond.; Mrs. L. H. Beals, M.D., Ahmednagar, India; Bayer Co., Lond.; Mr. C. Birchall, Liverpool; Messrs. Burroughs, Wellcome and Co., Lond.; Mrs. Bate, Clifton; Mr. B. Bird, Thrapstone; Mr. Rupert Bucknall, Lond.

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H.—Dr. F. G. Haworth, Darwen; Mr. John Hatton, Buxton; Dr. John T. Hewetson, Birmingham; Mr. R. B. Hope, Lond.; Messrs. T. Holland and Son, Lond.

I. The International Insurance Encyclopædia, New York, Managing Editor of; Interested.

J.—Dr. E. Jepson, Durham; J. D. M.; Mr. R. R. James, Lond.; Dr. H. Jarmulovsky, Kiel.

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